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Mentorship in Medical Writing: Shaping Future-Ready Publication Professionals

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ABSTRACT

Mentorship is essential in shaping future-ready publication professionals. It connects the wisdom gained from experience with the new skillset that must evolve rapidly to meet the rapidly evolving needs of modern scientific communications. Cultivating strategic thinking, adaptability, and confidence is not a solo affair. Through mentorship, we foster ethical, agile professionals equipped for an AI-assisted era, where human oversight is not optional but essential. Lifelong learning is foundational for the modern publication professional, ensuring continued relevance, ethical integrity, and the ability to adapt to evolving science, technology, and stakeholder expectations.

KEYWORDS

Mentorship, medical writing, AI ethics, peer networks, professional development, global standards, inclusivity

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INTRODUCTION

In today's fast-paced publishing environment, medical writers and publication professionals must navigate an increasingly complex terrain shaped by rapid technological innovation, stringent regulatory requirements, and expanding global collaborations. Since 2021, the demand for skilled medical communicators has surged alongside growth in clinical trials and real-world evidence studies, yet formal career pathways remain fragmented[1,2]. Newcomers frequently encounter "experience barriers," struggling to translate academic training into industry-standard deliverables[3], while seasoned professionals must continuously update their skill sets to keep pace with emerging tools and guidelines[4].

Simultaneously, Artificial Intelligence (AI) has begun to permeate every stage of the publication pipeline, from automated literature screening[5] and data extraction[6] to draft generation[7] and figure preparation[8], offering dramatic efficiency gains[9] but also introducing risks of bias, inaccuracy, and ethical lapses[10]. A 2025 study demonstrated that integrating AI into mentorship frameworks can enhance self-regulated learning and critical appraisal skills. However, the study highlights that AI cannot (yet) substitute the relational and emotional support provided by human mentors, emphasizing the importance of balanced human-AI collaboration[11].

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Globalization further complicates this landscape: Remote and cross-cultural teams demand proficiency in diverse regulatory frameworks (e.g., GPP 2022, ICMJE) and cultural sensitivities, magnifying the importance of tailored mentorship programs that bridge geographical and resource disparities[12]. In this evolving context, mentorship emerges not merely as career support but as the cornerstone for ensuring quality, ethical integrity, and professional confidence, anchoring the next generation of publication professionals amid relentless change.

MENTORSHIP FOR NEWCOMERS

Human mentorship remains critical for newcomers entering the medical writing field, particularly in overcoming "experience barriers" that can impede career entry. In an era where artificial intelligence is increasingly embedded in publication workflows, mentors play an essential role in guiding the responsible and ethical use of such tools. At the same time, globalization and the growing emphasis on diversity and inclusion require early-career professionals to remain adaptable and culturally aware.

Effective mentorship can validate a newcomer's diverse academic background, reinforce commitment to professional development through targeted training, and acknowledge active engagement in professional networks and skill-building workshops. Such guidance not only clarifies career goals but also equips mentees to apply AI tools judiciously, navigate cross-cultural contexts, and uphold ethical and quality standards. Ultimately, this guidance enables newcomers to build confidence, meet quality standards, develop skills to publish, and strengthen credibility in scientific communication, leading to professional success. These interconnected functions of mentorship are summarized in Table 1.

Evolving roles of publication professionals: Publication professionals now act as integrators, translating complex research into clear messages, managing multidisciplinary teams, and ensuring compliance with ethical frameworks. A 2023 scoping review highlighted how mentorship interventions in postgraduate STEM settings foster professional growth and connectedness, reducing time to first publication by up to 30%[13]. Concurrently, survey data from emergency medicine specialists showed that structured mentorship increased mentee publication output by 50% within one year[14-17].

Mentorship models in medical and stem contexts: Mentorship in medical and STEM fields has evolved into a multifaceted model that combines near-peer support, small-group circles, and formal programs to provide tailored guidance throughout one's career. By integrating personalized coaching with structured training, these approaches foster skill development, ethical decision-making, and professional confidence. Near-peer mentoring, where senior students support junior colleagues, has proven particularly effective: in one program pairing medical students with resident mentors, over 80% of participants submitted a case report on their first try and reported greater confidence in research methods. Society-based initiatives,

Table 1: Key functions of human mentorship in medical writing and publication practice

Function	Description	Expected outcomes
Goal setting and career orientation	Helps newcomers define clear short- and long-term objectives, aligning academic background with professional roles	Increased focus, measurable career milestones, and faster transition into the profession
Bridging experience barriers	Guides to translate academic knowledge into industry-standard deliverables and workflows	Improved manuscript quality, reduced revisions, and higher acceptance rates
Ethical and responsible AI use	Coaches mentees on integrating AI tools while maintaining accuracy, transparency, and compliance with ethical guidelines	Reduced risk of bias, plagiarism, or misattribution, enhanced credibility
Cultural awareness and global competence	Cultivates understanding of diversity, inclusion, and regulatory differences across regions.	Stronger collaboration in cross-cultural teams and broader professional networks
Confidence building	Offers encouragement and validation, helping mentees navigate challenges and adapt to new roles	Higher professional self-efficacy, resilience, and long-term career satisfaction
Skill development for publication	Provides structured feedback on writing, research, and presentation skills	Ability to meet journal requirements, produce impactful publications, and engage in scholarly discourse

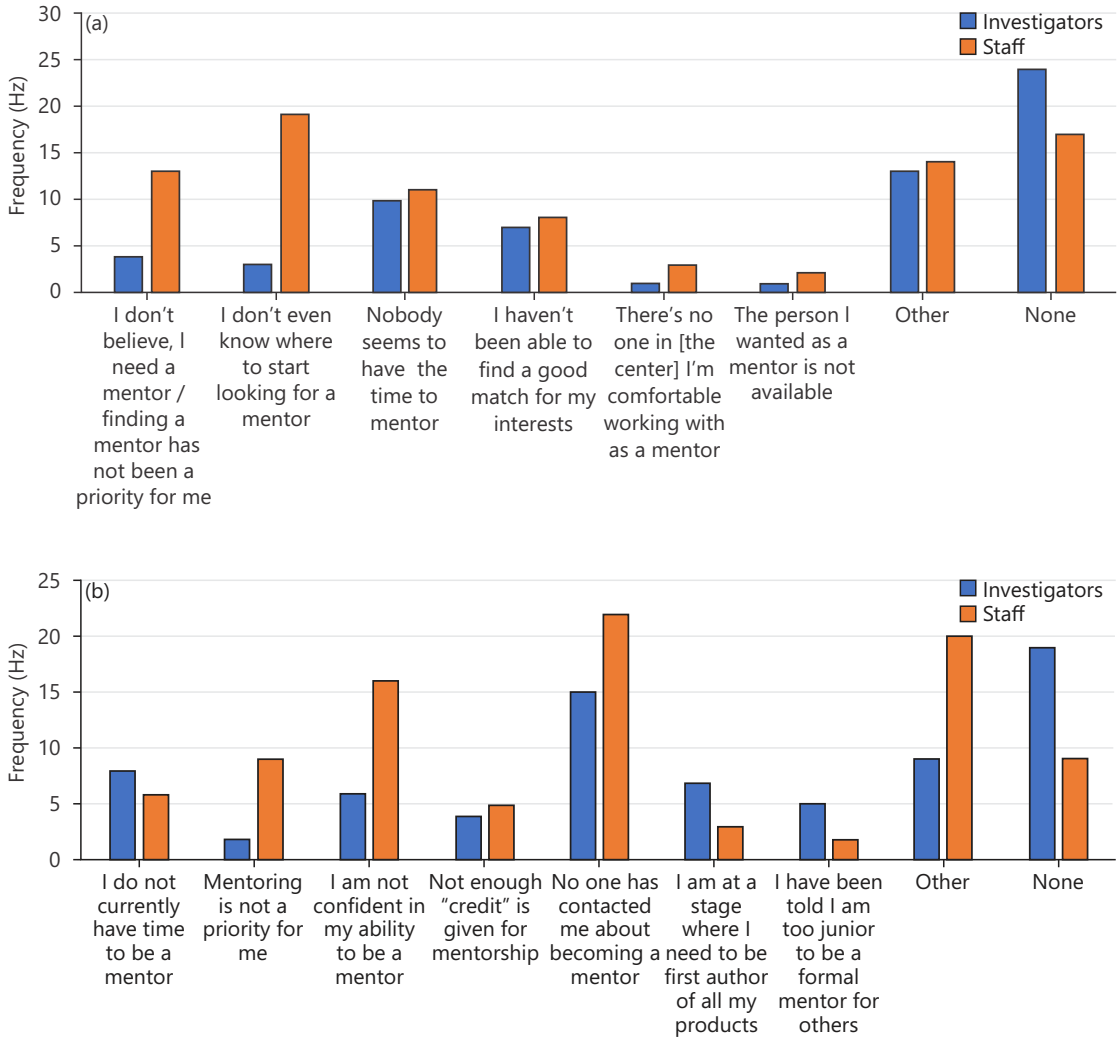

Fig. 1(a-b): Limiting factors for (a) Finding a formal mentor, (b) Becoming a formal mentor and frequencies compared between investigators and staff[21]

such as the STFM Underrepresented in Medicine Mentorship Program, address the specific needs of underrepresented groups and have been shown to significantly boost career confidence after just one year. Institution-led programs, especially in pharmacy education, often emphasize mentor training and formal curricula, resulting in high publication rates both during and after training. Collectively, these models highlight the power of targeted mentorship to bridge the gap between academic preparation and professional success.

AI integration and ethical oversight: AI tools, from LLM-driven draft generation to automated figure creation, have been shown to streamline multiple stages of the research workflow, significantly reducing time spent on manuscript preparation and visual design[18]. As these technologies become more integrated into scientific writing, mentors play a critical role in ensuring their responsible use. This includes coaching mentees to critically evaluate AI-generated content for accuracy and ethical compliance[19], reinforcing adherence to data privacy and authorship guidelines within AI-augmented workflows[20], and addressing disparities in access to AI tools, particularly in resource-limited settings, through shared licenses and inclusive training opportunities[11].

Figure 1 illustrates documented mentorship network structures (formal and informal ties) from a recent social-network analysis of healthcare researchers, highlighting cross-role and cross-site mentoring patterns that inform our discussion of remote and regional mentorship models.

By guiding proper AI integration, mentors help safeguard the integrity of scientific communication as publication processes evolve. Given the ethical and credibility risks, such as plagiarism, authorship misattribution, and over-reliance on AI-generated content, mentorship is essential in ensuring appropriate attribution, maintaining rigorous human oversight, and upholding scientific standards.

Global frameworks and remote mentorship: Over the past three years, remote mentorship and global standardization efforts have accelerated, transforming how mentorship is delivered and accessed. Narrative reviews of physician-scientist mentorship in Latin America underscore the value of adapting global best practices-such as GPP 2022 and ICMJE recommendations-to local contexts, enhancing cultural relevance[22]. At the same time, virtual pairing platforms have enabled mentors and mentees to connect across continents, using digital collaboration tools to overcome traditional geographical barriers[12]. Professional societies, including ACSE and ISMPP, have further supported this shift by offering online mentor training modules, broadening the pool of mentors, and promoting consistent, high-quality guidance[23]. Collectively, these initiatives not only help harmonize standards and democratize access, but also empower emerging professionals on a global scale.

CHALLENGES AND DISPARITIES

Despite clear benefits, mentorship still faces some obstacles that limit its effectiveness of mentorship in medical and academic settings. For example, non-academic hospitalists often report limited access to mentors due to heavy clinical workloads and a lack of formal support, with 78% of mid-career hospitalists lacking structured mentorship programs. The large volume of digital distractions of the modern attention economy further complicates this, making it difficult for mentees to balance mentorship with other deadlines. Additionally, uneven AI literacy poses a growing issue, as a 2024 review found significant gaps in AI ethics and technical training for medical students, underscoring the need for mentor-led initiatives[24]. Addressing these barriers requires coordinated efforts from institutions, professional societies, and mentors to provide the necessary time, resources, and training for sustainable and equitable mentorship.

RECOMMENDATIONS FOR EFFECTIVE MENTORSHIP

At the start of every mentor-mentee relationship, it's important to establish a clear framework through a written agreement. This document serves as a guide for both parties, ensuring mutual understanding and accountability. It should define both short-term goals, such as completing drafts or attending skill workshops, and long-term objectives, like achieving first-author publications or securing leadership roles. Additionally, the agreement should outline specific milestones and deliverables, such as deadlines for manuscript drafts, feedback sessions, and regular progress reviews. Clarifying roles and expectations is key, including details on mentor availability, preferred communication channels, and boundaries. Finally, the document should include evaluation criteria, defining how success will be measured, such as the number of revisions or adherence to submission timelines. By formalizing these elements, both the mentor and mentee gain clarity, reduce misunderstandings, and create a clear roadmap for achieving tangible progress.

As AI becomes increasingly integral to literature searches, data extraction, and draft generation, mentorship programs should embed structured AI ethics training. This involves guiding mentees to recognize and address algorithmic biases, safeguard data privacy, and maintain transparency in AI-assisted work. Complementing one-on-one mentorship, peer networks such as small "mentoring circles" can foster collaborative learning, distribute expertise, and strengthen community support. To ensure accountability and growth, programs can implement dashboards that track publication metrics, engagement levels, and mentee satisfaction, enabling timely refinements based on feedback. Equally important, inclusivity and cultural competence should be central-matching mentees with mentors attuned to their unique challenges and offering resources in multiple formats and languages. Together, these interconnected elements form the foundation of a strong mentorship model, as illustrated in Fig. 2.

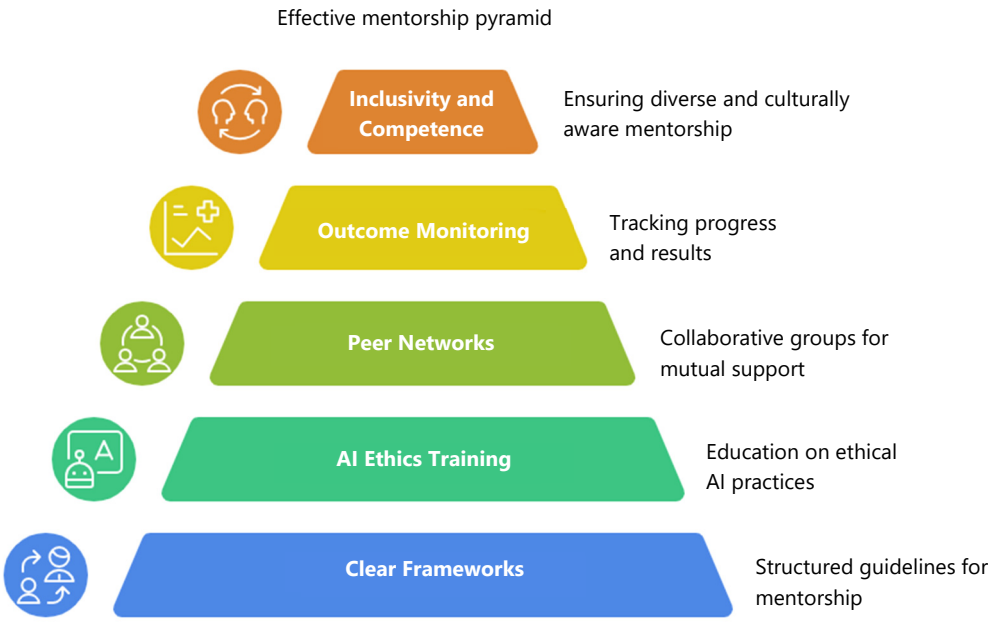

Fig. 2: Effective mentorship pyramid

A conceptual framework illustrating five interconnected layers for building a strong mentorship program: Clear Frameworks (structured goals and expectations), AI Ethics (responsible and transparent use of AI tools), Peer Networks (collaborative learning and knowledge-sharing), Outcome Monitoring (tracking progress and impact), and Inclusivity (addressing diverse needs and fostering equitable opportunities).

CONCLUSION

Effective mentorship in medical writing is a dynamic process that integrates clear goal setting, responsible AI integration, collaborative peer networks, systematic progress monitoring, and cultural inclusivity. By combining these elements, mentors not only equip publication professionals with technical skills and ethical awareness but also prepare them to navigate evolving research and publishing landscapes. Structured mentorship empowers writers to adopt innovative tools with discernment, uphold rigorous quality standards, and engage confidently with global scientific communities. Beyond individual career growth, investing in robust mentorship frameworks strengthens the integrity, diversity, and reach of scientific communication-ensuring that emerging voices contribute meaningfully to the future of medical writing.

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