

AI in medical writing – tools, tantrums, and testimonies

Lisa Chamberlain James
Trilogy Writing & Consulting Ltd.
Cambridge, UK

doi: 10.56012/zdsk2809

Correspondence to:

Lisa Chamberlain James
lisa@trilogywritings.com

Abstract

This article explores the impact of artificial intelligence (AI) on medical writing from an insider's perspective. It discusses the various AI tools available, and the practical benefits observed through real-world applications. It also addresses the initial resistance and fears surrounding AI adoption. The article emphasises the importance of critical thinking and human oversight in using AI tools effectively, highlighting the balance between embracing technology and maintaining the unique skills of medical writers. The future is bright for medical writers – this article explains why!

The term “artificial intelligence” or ‘AI’ is ubiquitous at the moment. It has become part of everyone's lives, and everyone is wondering how we will be affected by it, both personally and professionally. AI is now advancing into “Generative AI” or “GenAI”, where innovative ontologies and graph models are applied to create semantic text relationships. These technologies are now being explored as powerful tools to aid medical writers in their work, opening up new possibilities for enhancing productivity and efficiency.

Medical writers, too, are experiencing the transformation that AI brings. But before diving into the potential impacts of AI, it's essential to clarify what we mean by the term. “AI” is a catch-all term that is often misused, conflated, or misinterpreted, and encompasses everything from machine learning and natural language processing through to ChatGPT! For the purposes of this article, I will use AI to mean any tool that is using automation, including generative and rule-based elements, to complete tasks in the production of medical writing documents.



Photo: Freepik

The rise of AI tools

By the time this article goes to press, the landscape of AI tools available to medical writers will have likely expanded even further, with new releases and updates continually reshaping the field. This renders any discussion of “available tools” almost meaningless. It would also be inappropriate here to name any commercial products or imply any kind of advocacy for them.

However, the incredible promises surrounding AI in terms of time and cost savings speak volumes. It's clear that medical writing is ripe for a technological revolution.

There is no doubt that there are routine aspects to a medical writer's job – summarisation of large amounts of dense text, combing through pages and pages of data tables to identify signals or anomalies, even compilation of summary tables or subset tables ... the list goes on! Most of us would happily hand these tasks to a computer to parse the data and present us with a neat, concise summary. These tasks are perfect candidates for automation, freeing up time for medical writers to focus on higher-level analysis and creative problem-solving. The good news is that AI tools already exist to assist with these mundane tasks, significantly boosting efficiency and accuracy.

Sophisticated AI: A helping hand

AI tools today range from those using rule-based engines, where the machine follows pre-programmed instructions to process data and

text, to more advanced generative systems, which learn from vast datasets to generate new, contextually relevant content. This can lead to “hallucinations” – errors put into the data or text as the machine fills in the gaps or makes a conclusion, and this issue is being actively addressed. AI systems are constantly improving, and methods for detecting and correcting these errors are emerging, providing greater confidence in their reliability. Additionally, not all hallucinations are errors. It can be argued that a tool producing a conclusion may not be incorrect, and if viewed as a “suggestion” could even help the medical writer as a starting point for their own conclusion, offering valuable suggestions that can serve as starting points for further human analysis. There is also some very interesting work happening that is using one AI tool to “QC” another to check for hallucinations. Although in its infancy, the problem of hallucinations is already being actively addressed.

Tantrums – or is AI an ally for medical writers?

The initial belief that medical writing can be completely accomplished through AI is not only technically unrealistic because of the concerns around accuracy (hallucinations) and security of the highly confidential data being parsed, but also risks doing a grave disservice to the end users of the document being produced. Whether the document is a dossier for the regulatory agencies or a plain language document aimed at the

general public, the medical writer offers much more to the process than the ability to summarise complex data and information. Medical writers offer what computer algorithms cannot – critical thinking, contextualisation, and a nuanced understanding that AI cannot replicate. However, AI can assist by taking on repetitive, data-intensive tasks, allowing human writers to focus on higher-level judgment, contextualization, and decision-making. Therefore, it is important to explore where it is appropriate to apply AI, and what the experienced medical writer should be looking for in the evaluation of technology to ensure it is truly helping them with their work.

At Trilogy, we've embraced AI as a powerful tool that has already led to significant time savings and positive outcomes (see "Testimonies"). One of the most compelling benefits we've seen is AI's ability to detect important signals in data that human writers may have overlooked. AI tools can also be used to verify signals identified by human writers, ensuring greater consistency and accuracy in clinical data analysis. This is particularly valuable as clinical trials grow in complexity.

One of the key (and arguably the most important) skills needed by any medical writer is that of critical thinking. It is crucial in every aspect of our work to critically appraise the information before us, to question the sources, and to ensure that the conclusions can be supported and are fair and unbiased. These skills have never been more necessary than when appraising an AI tool. There are lots of astonishing figures and claims made by AI companies in terms of time saving and efficiencies, but these should be looked at through the lens of any extra checks and balances that will be needed – along with any changes to inputs for the tool to function and outputs that will be generated.

Testimonies

It is absolutely true that humans also make mistakes, and also need to have checks and balances to ensure that errors are identified and corrected.

Therefore, the need for checks and balances aside, there is no doubt that there is a very important role for AI tools to play in the medical writing world. I have seen this first hand with software that detected an important signal that the sponsor's human medical writers had missed. We have been using an AI tool not only to help detect signals and relationships within data, but also to double check that the signals and relationships that human medical writers have identified are the same as those identified by the

tool. This is a significant step towards uncovering many signals and relationships within clinical data that might otherwise be overlooked, especially with the increasing complexity of trials, such as platform and umbrella study designs.

A balanced approach to AI integration

The "human in the loop" is of vital importance in the medical writing world – people's lives are literally at stake – and so passing the task of medical writing to a computer without a critical human mind being involved is utterly irresponsible.

However, it is equally irresponsible to ignore the potential of AI tools to relieve writers from time-consuming tasks and allow them to focus on their unique skills. With AI handling data parsing, signal detection, and even suggesting potential conclusions, medical writers can devote more time to high-level thinking, contextualisation, and collaboration with clinical teams.

The ability of an AI tool to "double check" signal detection, parse huge amounts of data quickly, and to suggest possible conclusions, not only provides a layer of comfort that nothing has been missed, but frees the medical writer to focus on the higher-level tasks and have meaningful discussions with the clinical team at a much earlier stage.

The future of medical writing

Looking to the future, emerging AI technologies will continue to evolve, potentially reaching a point where AI can function autonomously in some areas, learning independently and enhancing its own capabilities. The upcoming "agentic" AI (the use of agents that do not need humans to provide prompts or guide the system to make decisions) will allow AI tools to work with minimal or no human input and to "learn" independently, turbo-charging the ability of AI and freeing more time for humans to use their critical thinking skills to enhance and evaluate the outputs.

As with most aspects of life – this is not "black or white". Using an AI tool should not be a binary choice, any more than it should signal the end of the medical writing profession. Rather, it's about finding the right balance between human expertise and machine assistance. Our experience has been that the current breed of AI tools, with the promised pipeline of increasing number of applications and documents to which they can be applied, offer huge advantages to medical writers. By embracing the tools available today, medical writers can significantly enhance their efficiency and effectiveness. AI tools are not here to replace the medical writing profession; they're here to help it evolve, offering incredible potential to tackle complex tasks with ease.

As we move forward in this paradigm shift, what is needed is critical appraisal and the medical writing experience to know which tool is the right tool for the job. It's crucial for medical writers to critically evaluate each tool, considering its strengths, limitations, and the specific tasks it can enhance. The rapid pace of AI development means that staying informed and adaptable is essential. Plus – in this fast-moving area of computer science – how future-proof is the tool? What pipeline does it offer?

The future of medical writing is bright. Embracing AI will undoubtedly lead to greater opportunities, benefiting both medical writers and the industry as a whole. It's exciting, but it's more important than ever to embrace the technology that can enhance and make our tasks more efficient, whilst ensuring that a human's ability to sense-check is retained. If we can crack that combination, great things are in store for all of us!

Disclosures and conflicts of interest

The author is employed by Trilogy Writing, an Indegene company, which produces AI tools for healthcare companies.



Author information

Lisa Chamberlain James is a Senior Partner of Trilogy Writing & Consulting. Aside from management activities, she leads client projects, with extensive experience in a variety of documents. Lisa received a PhD and post doc in Pathology at the University of Cambridge. She is a visiting lecturer at King's College London, a Fellow of the Royal Society of Medicine, and editor of the "Medical Communications and Writing for the Public" section of this journal. She has a special interest in writing for the public, pharmacovigilance, and patient information.