

## “Prospects and Threats for Medical Sciences and Healthcare Professionals with Artificial Intelligence tools”

Jonnalagadda Vihari<sup>1</sup>, Anmol Sahoo<sup>1</sup>, Sohom Ghosh<sup>1</sup>, Brijeshraj Swain<sup>1</sup>, Tanmaya Brahmadarshini Bhuyan<sup>1</sup>  
Prasanjeet Swain<sup>1</sup>, Bipratip Mukherjee<sup>1</sup>

<sup>1</sup>Institute of Medical Sciences (IMS) and Sum Hospital, Postgraduate, Siksha 'O' Anusandhan (SOA) Deemed to be University,  
Department of General Medicine, Bhubaneswar, Odisha. Email: viharijtk5@gmail.com

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Corresponding author: **Jonnalagadda Vihari**,<sup>1</sup> Email : viharijtk5@gmail.com

### ABSTRACT

The Chat Generative Pretrained Transformer (ChatGPT) artificial intelligence (AI) chatbot tool was made available to the world in the month of November, 2022, by the AI company OpenAI. It is currently free to use, and by January 2023, it had amassed over 100 million consumers, establishing it as the most rapidly expanding user interface to date. There are both deniers and admirers of this novel innovation since ChatGPT and other generative artificial intelligence (AI) tools can create writing that resembles text written by humans. Healthcare network employees now have novel barriers as a result of this new artificial intelligence (AI), but they also have novel prospects. This article highlights these barriers and prospects and offers an intriguing plan of action.

**Keywords:** Chat Generative Pretrained Transformer (ChatGPT), Artificial intelligence (AI) chatbot, Medical Sciences, Healthcare Professionals.

### INTRODUCTION

The fundamental issue with AI tools like ChatGPT is their capacity to produce paragraphs of text that are so easily understood and concise that they cannot be distinguished from the data created by humans, raising questions about their potential use in copyright abuse and deception. Because ChatGPT-generated content can be challenging for even specialized AI-text detection tools to separate out from human-written content (1). As shown in Table 1, various studies have explored the benefits and challenges of integrating AI tools like ChatGPT into medical sciences and healthcare.

#### **Generative Artificial Intelligence Tools Medical Benefits:**

It's fascinating to think about how chatbots based on artificial intelligence like ChatGPT may serve front-line practitioners in practical ways. For instance, AI systems can assist healthcare facilities in producing summary reports for discharge, a laborious task that is often assigned to younger physicians. According to recent research, ChatGPT automates a burdensome procedural task, generating a proper discharge report in a matter of

seconds with little input from physicians. This gives younger doctors more time to deliver treatment to patients and concentrate on their medical education (2).

ChatGPT can assist with and perhaps substitute clinician-patient conversations in addition to administrative duties. Studies found that ChatGPT's responses to queries about cancer were 96.9% precise in comparison to the National Cancer Institute's responses on its website, which is titled "Common Cancer Myths and Misconceptions." This finding suggests that AI might be utilized to respond to queries from patients about widespread cancer myths (3).

As a result, several major medical organisations have begun to employ ChatGPT and other artificial intelligence (AI) tools in their day-to-day operations to assist with the delivery of healthcare (4).

ChatGPT is one example of an artificial intelligence (AI) system that has the possibility to revolutionize academic publishing and study. Investigators had been utilizing ChatGPT's predecessors before it to assist them plan their ideas, writing programmes, and reviewing study content (5). As this new technology advances, it's probable that researchers will begin applying it to aid in

the planning of experiments, peer-reviewing, and editorial decisions. All of these activities could hasten the advancement of science and the application of study results to practice (6).

Experts believe that paperwork like the laborious process of preparing proposals for grants or proofreading research publications might be speed up and possibly automated with the use of artificial intelligence (AI) tools like ChatGPT (7). Because of the software's capacity to accurately translate medical words, certain investigators have hypothesized that ChatGPT might even enable investigators to share their findings in various languages (8).

Healthcare professionals must comprehend novel innovations like ChatGPT and generative artificial intelligence and stay updated on their developments. As pioneers in medicine, we all should have a thorough knowledge of the difficulties these new technologies create for the healthcare system, our physicians, and the people we treat. We also must properly acknowledge the opportunity that these novel innovations present us with to deal with some of the issues we are now facing, like the lack of qualified medical professionals and physician exhaustion.

Different regulatory bodies are now catching up and have developed regulatory structures to guarantee the safe introduction of artificial intelligence (AI) technologies that have an influence on medical treatment in the healthcare environment. In the United States, the FDA published the "Artificial Intelligence/Machine Learning (AI/ML)-Based Software as a Medical Device (SaMD) Action Plan" in the year 2021. Healthcare officials need to be informed about the manner in which local laws in their area are implemented.

### **Generative Artificial Intelligence Tools Medical Hazards:**

The prejudice risk for chatbots using artificial intelligence is identical to that for other artificial intelligence models (9). Since these algorithms may be constrained and impacted by the data that they were built

on, experts are always working to teach artificial intelligence (AI) models how to act ethically and eliminate any bias.

Due to their large language models, which support ChatGPT and other generative artificial intelligence (AI) models, which acquire knowledge by methodically scraping data from the web, including personally identifiable data gathered without approval, which may be a breach of confidentiality, these models pose an imminent danger to user privacy (10). It is important to make sure that the private data that has been obtained is safe from hacker groups (11).

In the context of learning, the problems of deception and duplication are especially worrisome (12). This claim was demonstrated in the latest study, which indicated that ChatGPT was the first computer program to pass the US Medical Licencing Exam with a score of 60% and exhibiting sound scientific reasoning and observations (13). The most current version of Google's massive language model, MedPaLM, achieved a score of 85%, demonstrating how these artificial intelligence models are advancing (14). Apart from that, the reality that ChatGPT, an artificial intelligence (AI) model, is capable of passing a medical school graduation test may also be a criticism of our existing medicine schooling system and its emphasis on fact memorization by rote (15).

When it comes to writing scientific research, ChatGPT can analyze the literature and produce articles that seem to be on par with those written by human scholars. According to the latest study, reviewers could only reliably identify 68% of research abstracts as being created using ChatGPT (16).

In the month of January 2023, ChatGPT was listed as a co-author in a minimum of 4 scholarly works as a result of its capacity to provide academic content (17). Because of these modifications, journal publishers have acted fast to change their rules for writers. For instance, any articles that contain language from an Artificial intelligence tool like ChatGPT have been banned from certain conferences (18). Many renowned Journals

announced that they will not allow Artificial intelligence tools as an author on study articles (8,19–21). As outlined in Table 2, the integration of AI tools in healthcare presents both advantages and challenges that need to be carefully considered in the quest for improved patient care and operational efficiency.

## **CONCLUSION**

Artificial intelligence tools like ChatGPT have the capacity to completely change how we engage with innovation across the disciplines of research, clinical care and healthcare administration. These tools are capable of offering patients and physicians tailored, instant guidance and help. To fully grasp the promises of these chatbots, there are a number of issues that must be resolved. Assuring the credibility and precision of the data that these chatbots deliver is a significant problem. Maintaining sensitive medical information private and secure is another issue.

To make certain that generative artificial intelligence chatbots are used to their best ability in assisting both patients and physicians, it will be crucial for physicians to keep updated themselves as the science underlying these chatbots keeps evolving.

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