ChatGPT Use Among Pediatric Healthcare Providers

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Abstract

Background: The public launch of OpenAI's ChatGPT generated immediate interest in the use of large language models (LLMs). Healthcare institutions are now grappling with establishing policies and guidelines for use of these technologies, yet little is known about how healthcare providers view LLMs in medical settings. Moreover, there are no studies of how pediatric providers are adopting these readily accessible tools.

Objective: This study aims to determine how pediatric providers are currently using LLMs in their work as well as their interest in using a HIPAA-compliant version of ChatGPT in the future.

Methods: A survey instrument consisting of structured and unstructured questions was iteratively developed and then sent via REDCap to all Boston Children's Hospital prescribers. Participation was voluntary and uncompensated; all survey responses were anonymous.

Results: Surveys were completed by 390 pediatric providers. Approximately 50% of respondents had used an LLM; of these, 75% were already using an LLM for non-clinical work and 27% for clinical work. Providers detailed various ways they are currently using an LLM in their clinical and non-clinical work. Only 29% indicated that ChatGPT should be used for patient care in its present state; however, 73% reported they would use a HIPAA-compliant version of ChatGPT if one were available. Providers' proposed future uses of LLMs in healthcare are also described.

Conclusions: Despite significant concerns and barriers to LLM use in healthcare, pediatric providers are already using LLMs at work. This study will give healthcare leaders and policymakers needed information about how providers are using LLMs in a clinical context.

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Objective: This study aims to determine how pediatric providers are currently using LLMs in their work as well as their interest in using a HIPAA-compliant version of ChatGPT in the future.

Methods: A survey instrument consisting of structured and unstructured questions was iteratively developed by a team of informaticians from various pediatric specialties. The survey was sent via REDCap to all Boston Children's Hospital pediatric providers. Participation was voluntary and uncompensated; all survey responses were anonymous.

Results: Surveys were completed by 390 pediatric providers. Approximately 50% of respondents had used an LLM; of these, 75% were already using an LLM for non-clinical work and 27% for clinical work. Providers detailed various ways they are currently using an LLM in their clinical and non-clinical work. Only 29% indicated that ChatGPT should be used for patient care in its present state; however, 73.8% reported they would use a HIPAA-compliant version of ChatGPT if one were available. Providers' proposed future uses of LLMs in healthcare are described.

Conclusions: Despite significant concerns and barriers to LLM use in healthcare, pediatric providers are already using LLMs at work. This study will give policymakers needed information about how providers are using LLMs clinically.

Trial Registration: N/A

Keywords: ChatGPT, Machine Learning (D000069550), Surveys and Questionnaires (D011795), patient care, Medical Informatics Applications, Diffusion of Innovation

Introduction

The public launch of ChatGPT by Open AI in November 2022 generated immediate interest from a wide range of professionals as well as the public. The chatbot is based on a generative pre-trained transformer (GPT) large language model (LLM) which processes large amounts of text to create an artificial intelligence (AI) system that can then be repurposed across a variety of domains and diverse tasks.[1] Researchers and healthcare organizations have begun investigating how LLMs could be used and adapted within the medical field.

Some of the emerging potential applications in medicine have included knowledge retrieval, which Open AI has used in its own promotional material, as well as clinical decision support, medical note taking, and composing patient communications. [2-5] However, potential problems with the

application of LLMs to medicine are still not well understood. One early concern has been the phenomenon of AI “hallucinations”, in which the LLM can unpredictably return plausible sounding but incorrect or nonsensical answers to prompts. [6,7] Additionally, the content and phrasing of questions/prompts can significantly influence the LLM’s output potentially impacting reliability. [8-10] Concerningly, the publicly available version of ChatGPT has been shown to have a diagnostic error rate of 83% in pediatric cases. [11] Other concerns regarding the clinical use of LLMs include privacy risks, lack of transparency, and bias perpetuation. In response, many institutions have begun drafting guidelines for using ChatGPT and other generative AI tools in healthcare settings. [12]

The extent to which LLMs are already being used in healthcare is unclear. There is a need for better assessment of the current use practices, future intended uses, and general knowledge of healthcare providers regarding generative AI tools. Understanding the concerns and perspectives of clinical providers will be valuable in guiding future development of both the AI tools themselves, as well as the guidelines and principles for the use of such tools in healthcare.

Early surveys of ChatGPT/LLM use have focused broadly on uses beyond clinical care, have assessed perceptions rather than use, or have been limited in scope. [13-17] There is a dearth of information about healthcare providers’ perceptions of the benefits and barriers of LLMs in healthcare, and no studies have assessed how pediatric providers are already using the publicly available tools in their clinical and non-clinical work. This study sought to describe the knowledge and use of LLMs, such as ChatGPT, by physicians and advanced practice providers at a large, academic, free-standing children’s hospital.

Methods

This study employed a cross-sectional survey design to explore clinicians’ knowledge and use of LLMs such as ChatGPT. The survey instrument was developed using a modified Delphi method by an expert panel of 10 physician informaticians from various pediatric specialties; survey questions were collaboratively co-designed with multiple rounds of feedback until consensus was achieved. The survey consisted of a series of structured and unstructured questions and used adaptive questioning; the full survey including adaptive questioning logic is available in Supplement 1. The survey was pilot tested on a group of 5 pediatricians prior to being sent to the entire target population.

Ethical Considerations

The study protocol, survey, and recruitment tool were granted full approval by the Boston Children’s Hospital Institutional Review Board (#P00045317). Participation in the survey was voluntary and uncompensated; respondents were informed of the purpose of the study and assured of their anonymity. Informed consent and privacy/confidentiality protection language is provided in the supplemental information [Supplement 1 and 2].

Recruitment

This closed survey study was conducted at Boston Children's Hospital, a large academic urban

pediatric healthcare system. The target sample was all Boston Children's Hospital physicians and advanced practice providers in both hospital and outpatient clinic settings. Recruitment emails (available in Supplement 2) were sent via Research Electronic Data Capture (REDCap), a secure, web-based data capture application which was also used for survey administration. [18,19] Survey recruitment and data collection started on October 12, 2023, and extended through November 14, 2023. Reminder emails were sent via REDCap to non-respondents a maximum of two times.

Survey responses were analyzed in aggregate with minimum subgroup sizes of 10 responses to minimize the risk of re-identification of participants. Four survey questions included an "other" free-text option to capture concepts not covered by the provided answer choices. These free-text responses were analyzed qualitatively using the following methods. For each question, the predetermined discrete survey responses were used as a provisional codebook, which was expanded through inductive content analysis of the free-text responses. [20] To create the expanded code book, two researchers (DK and NR), one of whom was not involved with the data acquisition process, reviewed free-text responses and generated additional codes through an iterative process involving consensus meetings until no new codes were identified. [21, 22] Coding conflicts were resolved by a third researcher (JH). This expanded codebook was then applied to categorize free-text survey responses. Following coding, three researchers (DK, NR, JH) organized coded responses into broader themes through an iterative process of consensus meetings.

Subgroup Analysis

Chi-squared tests of independence, followed by a post-hoc analysis of adjusted residuals, were employed to assess differences in survey question responses across demographic variables including age, gender, race/ethnicity, and clinical role.

Results

Demographic Characteristics

Surveys were sent to a total of 3127 physicians and advanced practice providers via email; we received 390 (12.5%) completed survey responses. Most respondents self-identified as female (n=293, 76.3%), white or European (n = 324, 83.7%), and either an attending physician (n = 165, 42.4%) or advanced practice provider (n = 110, 28.3%). [Table 1]

Table 1. Characteristics of respondents who voluntarily participated in the ChatGPT/LLM survey during the survey data collection period.

Characteristic	Number of respondents	Percentage of respondents
Gender		
Female	293	76.3%
Male	85	22.1%
Non-binary	2	0.5%
Prefer not to answer	4	1.0%
Age		

≤ 29	24	6.2%
30-39	134	36.2%
40-49	110	28.3%
50-59	69	17.7%
60-69	34	8.7%
≥ 70	11	2.8%
Race/Ethnicity		
American Indian or Alaska Native	1	0.3%
Asian or Asian American	36	9.3%
Black or African American	13	3.4%
Hispanic or Latino/a/e	14	3.6%
Native Hawaiian or Pacific Islander	0	0.0%
White or European	324	83.7%
Something else	4	1.0%
Prefer not to say	12	3.1%
Role		
Attending Physician	165	42.4%
Advanced Practice Provider	110	28.3%
Resident/Fellow	32	8.2%
Other	82	21.1%
Specialty		
Anesthesia	14	3.6%
Emergency Medicine	20	5.1%
General Pediatrics	59	15.2%
Pediatric subspecialty	149	38.3%
Radiology	7	1.8%
Pathology	2	0.5%
Surgical specialty	50	12.9%
Other	88	22.6%

Familiarity with and current use of ChatGPT

Two hundred and eighty-eight (73.7%) of respondents indicated that they were familiar with ChatGPT or another LLM, and an additional 84 (21.5%) indicated that they had heard of ChatGPT but did not really know what it is. Only 19 respondents (4.9%) reported that they had not heard of ChatGPT. Of those who had heard of ChatGPT, 197 (53.1%) had used ChatGPT or a similar model. Only 52 (26.7%) of respondents who were using an LLM had used it clinically (Figure 1). Reported clinical uses of LLMs are shown in Figure 2; the most common uses were drafting school/work letters and drafting prior authorizations.

One-hundred forty-two (72.4% of question respondents) reported using LLMs for non-clinical work (Figure 1). Non-clinical use cases included drafting emails (n = 55, 39.6%), creating outlines for grants, papers or teaching materials (n = 52, 37.4%), and drafting a letter of recommendation (n = 51, 36.7%), writing code (e.g., for statistical analysis or data visualization) (n = 18, 12.9%). Respondent free-text uses that were listed in “other” are shown

in Table 2.

Most respondents did not think ChatGPT should be used for patient care in its present state (n = 256, 70.9%). Listed concerns were accuracy or reliability (319, 87.2%), patient privacy or security (237, 64.8%), unclear how ChatGPT makes decisions (232, 63.4%), lack of regulation (225, 61.5%), and potential bias in the data model (219, 59.8%). Free-text responses for this question are shown in Table 2.

Future use of ChatGPT

Two hundred and seventy-two respondents (74.1%) indicated they would use a version of ChatGPT if one were available that was compliant with the Health Insurance Portability and Accountability Act (HIPAA) as shown in Figure 3. [22] Figure 4 shows examples of how they envisioned using a HIPAA-compliant version of ChatGPT. If such a model were available, most participants indicated that they would feel comfortable entering patient diagnoses (n = 22, 83.9%), age (n = 188, 70.9%), and clinical questions without patient information (n = 185, 69.8%); few would feel comfortable entering patient name (n = 101, 38.1%), medical record number (n = 87, 32.8%), date of birth (n = 98, 37.0%), or whole notes from a patient chart (n = 99, 37.4%). Table 2 shows the results of our analysis for free text responses.

Subgroup Analysis

Trainees were more likely to have used ChatGPT than other respondents (p-value = 0.01); the percentage who endorsed using ChatGPT clinically was higher among trainees (40%) than non-trainees (24%), but the values in this question did not reach statistical significance (p-value = 0.06). Male respondents were also more likely to have used ChatGPT (p-value = 0.005). Respondents in the ≤29 age group were more likely to be familiar with ChatGPT and those in the ≥ 70 age group were less likely (p-value = 0.0002). Responses to the rest of the survey questions did not statistically differ across demographics. Specifically, there was no statistically significant difference in whether an LLM was being used for clinical and/or non-clinical work, the endorsed current use cases, expressed concerns regarding LLM use in healthcare, desire for a HIPAA-compliant LLM, or endorsed planned uses for a HIPAA-compliant LLM.

Table 2: Analysis of Free-text Responses: unstructured free-text responses were collected for 4 questions regarding participant use of and beliefs about LLMs in clinical and non-clinical work. The responses were analyzed and codified by a team of 3 physicians using formal qualitative methodology.

CODED SURVEY RESPONSE	RESPONDENTS	EXAMPLE
How have you used ChatGPT to help you with your non-clinical work?		
Information search	12	It is a helpful adjunct to online searching. Helps you quickly narrow what you are looking for (assuming you don't want a broad search).
Plan recreational activity	8	Used for coming up with ideas for non-work-related group activities
Summarize text	5	Summarize review papers into usable notes.
Revise communication	5	Editing text for grammar.
Literature review	3	Triage/screen PubMed abstracts to identify references of interest
Generate title	3	Generate catchy titles for manuscripts and presentations.
Ideation	3	Generate research ideas
Draft mass communication	3	social media for my business
Creative writing	2	Write poems (in English and other languages), generate ideas
Wellbeing programming	2	Generate relaxation scripts.

Workflow	1	Write workflow proposals
Draft cover letter	1	Write … cover letters
Translation	1	translation of materials from English to another language
Task management	1	organizing to-do lists
What concerns do you have about using ChatGPT clinically?		
Perceived lack of utility	5	Still not clear on how it would be used in healthcare
Potential bias in the data model	3	At times, ChatGPT is confounded by the presence of wrong data and, therefore, presents clearly inaccurate statements.
Legal	3	legal concerns- I am so careful about my documentation, and I just don't think chat GPT will ever word things the way I need it to help me in medicolegal situations.
Automation bias	2	Worried about clinician interpretation of ChatGPT output … and cannot replace clinical reasoning
Plagiarism	2	It is plagiarism on steroids.
Learning curve	1	Would not like to have to master a new technology in addition to the onslaught of requests for computer interface as it is
Depersonalization	1	That it could take away from collaborative development of an illness explanation that provider and patient/family engage in together.
Skill atrophy	1	Humans writing reports allows clinicians to integrate data in a way that supports clinical decision making and patient counseling. I am already finding a lack of critical thinking skills in graduate students. Push button documentation would be efficient (and report writing is arduous) but we all still need to think.
How would you use the Boston Children's Hospital HIPAA compliant version of ChatGPT if it were available?		
Research	6	My AI robot will … learn to sort data in redcap
Translation	3	I use it probably in the most simple of ways to translate patient handouts into their language.
Summarize clinical narrative	3	Summarization of complex patient medical history and relevant clinical information and other data aggregation tasks (e.g., ascertain primary/longitudinal care team members involved in patient's care)
Extract data from narratives	1	Review patient charts and imaging reports to generate tabular data for research.
Workflow	1	Lots of potential nonclinical purposes, describing workflow, responsibility mapping
If a HIPAA compliant version of ChatGPT were available, what types of information would you feel comfortable entering?		
Demographic data	1	Name of patient's school
Patient medications	1	Info related creating a prior auth insurance, medication, dx, etc.

Discussion

This study demonstrates that pediatric providers are already using large language models in both their clinical and non-clinical work. Because of known limitations of LLMs in a clinical setting including demonstrated low diagnostic accuracy, it is important to know how pediatricians are using these tools. This study adds to current literature by providing granular information about how people are currently using LLMs in their work as well as detailing ways that providers envision using a HIPAA-compliant future version of ChatGPT.

Nearly all survey respondents had heard of ChatGPT, and most had used this tool. While nearly 75% of LLM users indicated that they are already using ChatGPT in their non-clinical work, only a little over 25% indicated that they are currently using an LLM for clinical work. Moreover, the most common clinical uses reported were for administrative tasks like drafting letters, prior authorizations, and patient education materials.

Similar to other early studies, we found that clinicians are enthusiastic about using LLMs (specifically, a HIPAA-compliant LLM) in clinical and non-clinical work. It is notable that almost a third of pediatric providers in this study indicated that they would feel comfortable using LLMs for patient care in the current format. Additionally, almost ¾ of respondents would use a HIPAA-compliant version of ChatGPT if one were available. If a HIPAA-compliant LLM were available, participants described a variety of ways that they would use it. Most envisioned use cases for the HIPAA-compliant LLM were still administrative/operational; however, other common uses included drafting all or part of a clinical note as well as a variety of uses related to clinical decision support and clinical documentation.

Since we have demonstrated that LLMs are already being used clinically and that there is strong interest in further future use of LLMs, it is imperative that healthcare systems and government agencies create thoughtful policies and regulations for LLM use in healthcare. The Biden administration recently announced an executive order that directs actions to maximize the promise and manage the risks of AI. [23] Clinical informaticians are needed to help navigate thoughtful implementation of AI tools into clinical care.

This study has limitations, most notably generalizability is limited by the low response rate and pediatric provider population. Another limitation is selection bias, as providers using LLMs may be more interested in completing a survey related to this topic. Similarly, though recent American Board of Pediatric statistics show that 67% of pediatricians are female and 57% are white [24], our survey respondents were even more skewed toward these populations. Self-reported data may contain some social desirability bias as respondents may attempt to demonstrate that they are using these technologies in acceptable ways. Also of note, we did not ask if respondents worked inpatient, outpatient or in another setting; not having that information limits some interpretation of the response data. For example, the number of providers interested in using LLMs to write discharge summaries is less interpretable as these documents are not generally written by outpatient providers.

The enthusiasm we found for future use of LLMs lends itself to further investigation of LLM use in healthcare. We propose evaluating the differences in use cases by clinical work setting such as emergency department vs inpatient vs outpatient vs proceduralists. There would be value to determining if survey results would differ across practice settings such as non-academic, non-urban, adult patients, different patient resources, or by geographic location; we propose a larger study across institutions as a future study. In-depth interviews and other qualitative methods could be used to gain deeper insights into providers' LLM use and beliefs. Finally, exploring patients' perceptions and current use of LLMs would be of great value.

Conclusions

This survey study adds to the corpus of knowledge on how providers are thinking about and using LLMs in a clinical context. LLMs will become another in a series of digital tools in the clinical ecosystem meant to help advance clinical care. Despite significant concerns and barriers to LLM use in healthcare, this survey demonstrates these tools are already commonly used and there is enthusiasm for future use. Knowing how providers are using LLMs in their clinical and non-clinical work will help guide policy and regulations regarding healthcare use of artificial intelligence. As informaticians, it is incumbent upon us to support the appropriate use of these technologies to improve patient care, while also monitoring for their unintended consequences.

Data Availability

The data sets generated and analyzed during this study are available from the corresponding author on reasonable request.

Conflicts of Interest

None declared.

Abbreviations

GPT: Generative Pre-trained Transformer

LLM: large language model
HIPAA: Health Insurance Portability and Accountability Act
REDCap: Research Electronic Data Capture
AI: Artificial Intelligence

References

1. Brown T, Mann B, Ryder N, et al Language models are few-shot learners. Advances in neural information processing systems; 2000;33:1877-1901.

2. Singhal K, Azizi S, Tu T, et al Large language models encode clinical knowledge. Nature; 2023;20;172-180.

3. Ali SR, Dobbs TD, Hutchings HA, et al. Using ChatGPT to write patient clinic letters. Lancet Digit Health; 2023;5(4):e179-e181.

4. Lee P, Bubeck S, Petro J Benefits, limits, and risks of GPT-4 as an AI chatbot for medicine. N Engl J Med. 2023;388(13):1233-1239.

5. Goodman RS, Patrinely JR, Stone CA, et al Accuracy and reliability of Chatbot responses to physician questions. JAMA Netw Open; 2023;6(10):e2336483. doi:10.1001/jamanetworkopen.2023.36483

6. Zhang P, Boulos MNK Generative AI in medicine and healthcare: promises, opportunities and challenges. Future Internet; 2023;15(9):286.

7. Rabbani N, Brown C, Bedgood M, et al Evaluation of a large language model to identify confidential content in adolescent encounter notes. medRxiv (Cold Spring Harbor Laboratory). Published online August 28, 2023.

8. Snow J ChatGPT can give great answers. But only if you know how to ask the right question. Wall Street Journal; https://www.wsj.com/articles/chatgpt-ask-the-right-question-12d0f035. Published April 12, 2023. Accessed November 19, 2023.

9. Strong E, DiGiammarino A, Weng Y, et al Chatbot vs medical student performance on free-response clinical reasoning examinations. JAMA Intern Med; 2023;183(9):1028–1030.

10. Koopman B, Zuccon G Dr. ChatGPT tell me what I want to hear: How different prompts impact health answer correctness. Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing. Association for Computational Linguistics; 2023:15012-15022.

11. Barile J, Margolis A, Cason G, et al. Diagnostic Accuracy of a Large Language Model in Pediatric Case Studies. *JAMA Pediatr.* 2024;178(3):313–315. doi:10.1001/jamapediatrics.2023.5750

12. Harvard University. Initial guidelines for using ChatGPT and other generative AI tools at Harvard. Accessed November 19, 2023. https://huit.harvard.edu/news/ai-guidelines

13. Ayoub NF, Lee YJ, Grimm D, Divi V Head-to-head comparison of ChatGPT versus Google

Search for medical knowledge acquisition. Otolaryngol Head Neck Surg; 2023 Aug 2. doi: 10.1002/ohn.465. Epub ahead of print. PMID: 37529853.

14. Temsah MH, Aljamaan F, Malki KH, et al ChatGPT and the future of digital health: a study on healthcare workers' perceptions and expectations. Healthcare; 2023;11(13):1812.

15.Parikh PM, Talwar V, Goyal M ChatGPT: An online cross-sectional descriptive survey comparing perceptions of healthcare workers to those of other professionals. Cancer Res Stat Treat; 2023;6(1):32.

16. Iyengar KarthikeyanP, Yousef MMA, Nune A, Sharma GK, Botchu R Perception of chat generative pre-trained transformer (Chat-GPT) AI tool amongst MSK clinicians. J Clin Orthop Trauma; 2023;44:102253.

17. Hu JM, Liu FC, Chu CM, et al Health care trainees' and professionals' perceptions of ChatGPT in improving medical knowledge training: rapid survey study. J Med Internet Res; 2023;25(1):e49385.

18. PA Harris, R Taylor, R Thielke, J Payne, N Gonzalez, JG. Conde, Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr;42(2):377-81.

19. PA Harris, R Taylor, BL Minor, V Elliott, M Fernandez, L O'Neal, L McLeod, G Delacqua, F Delacqua, J Kirby, SN Duda, REDCap Consortium, The REDCap consortium: Building an international community of software partners, J Biomed Inform. 2019 May 9 [doi: 10.1016/j.jbi.2019.103208]

20. Miles MB, Huberman M, Saldana J. Qualitative data analysis: a methods sourcebook. Thousand Oaks, California: SAGE Publications; 2018.

21. Ancker JS, Benda NC, Reddy M et al Guidance for publishing qualitative research in informatics. J AM Med Inform Assoc; 2021;28(12):2743-8.

22. Cofie N, Braund H, Dalgarno N Eight ways to get a grip on intercoder reliability using qualitative-based measures. Can Med Educ J; 2022;13(2):73-6.

23. Office for Civil Rights (OCR). HIPAA home. HHS.gov. Published April 19, 2024. https://www.hhs.gov/hipaa/index.html

24. White House, United States. Executive order on the safe, secure, and trustworthy development and use of artificial intelligence. The White House; Published October 30, 2023. Accessed December 05, 2023. https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/

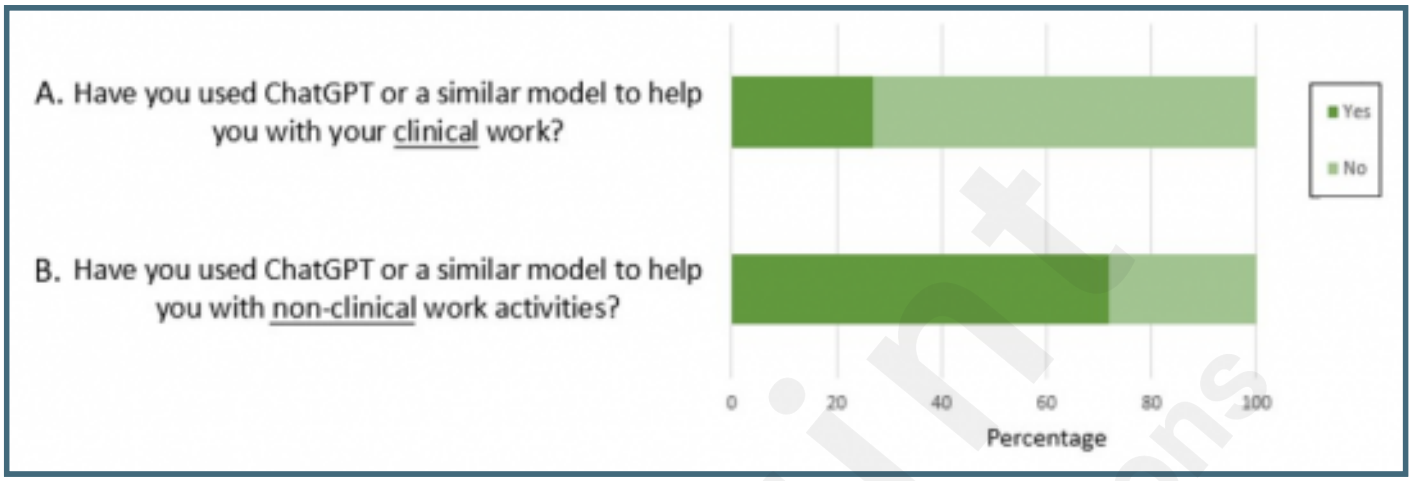
25. Turner AL, Gregg CJ, Leslie LK Race and ethnicity of pediatric trainees and the board-certified pediatric workforce. Pediatrics; 2022;150(3):e2021056084.

Supplementary Files

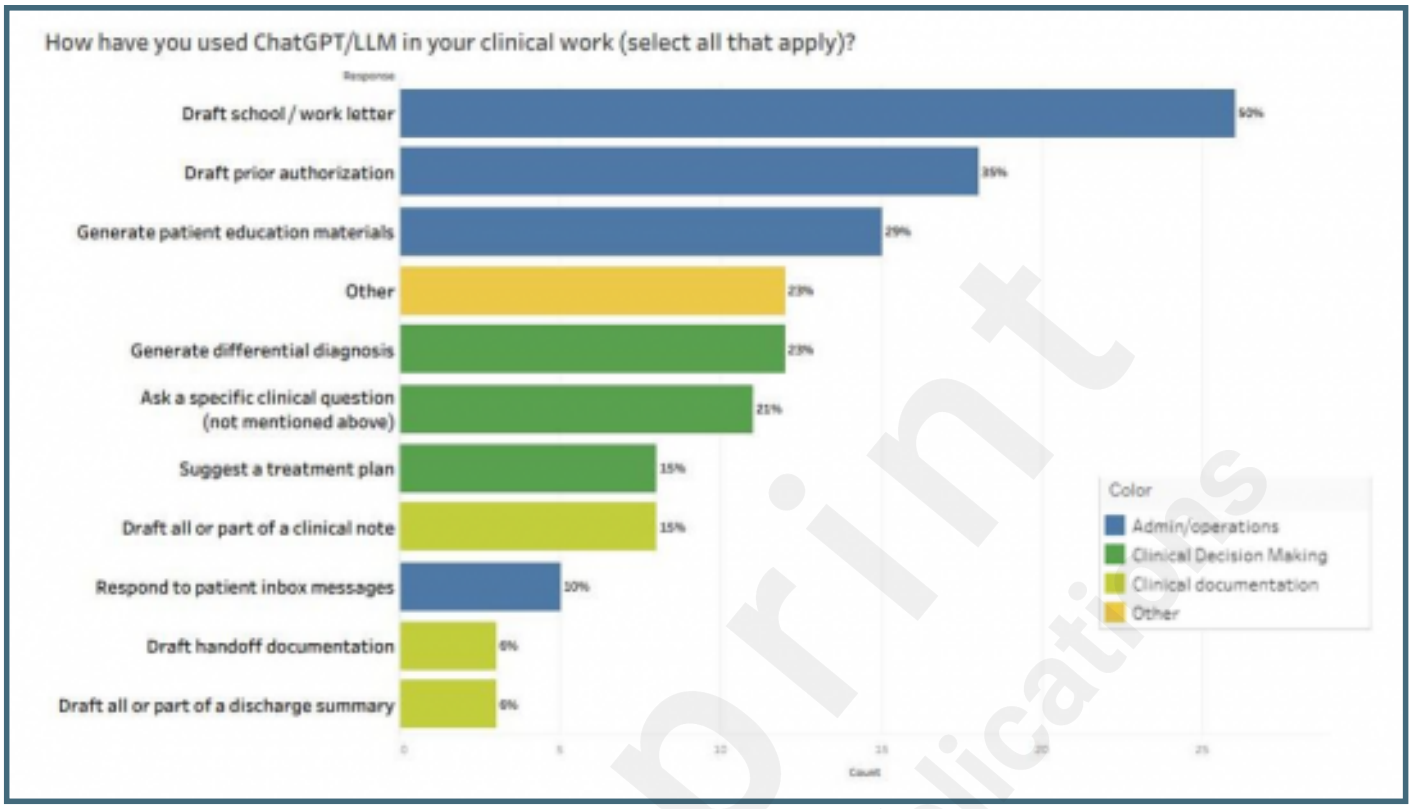
Untitled.
URL: http://asset.jmir.pub/assets/bd7d46f860d89a270850cde60ca23339.docx

Figures

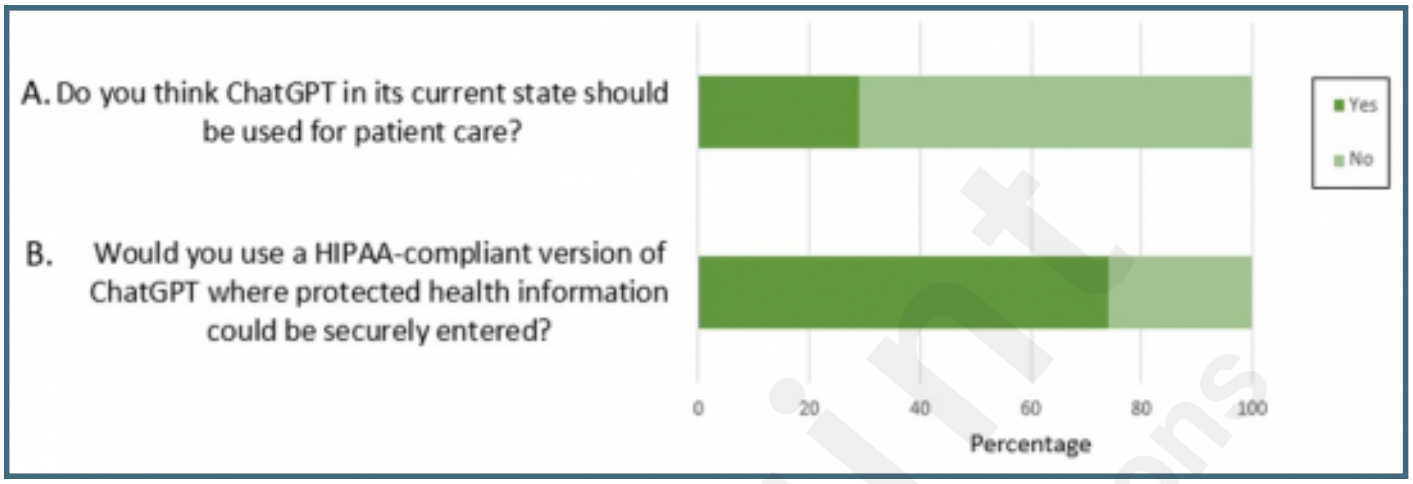
A. The percentage of respondents who endorsed having used an LLM clinically is shown in dark green; the percentage of respondents who have not used an LLM clinically is shown in light green. B. The percentage of respondents who endorsed having used an LLM for non-clinical work is shown in dark green; the percentage of respondents who have not used an LLM for non-clinical work is shown in light green.



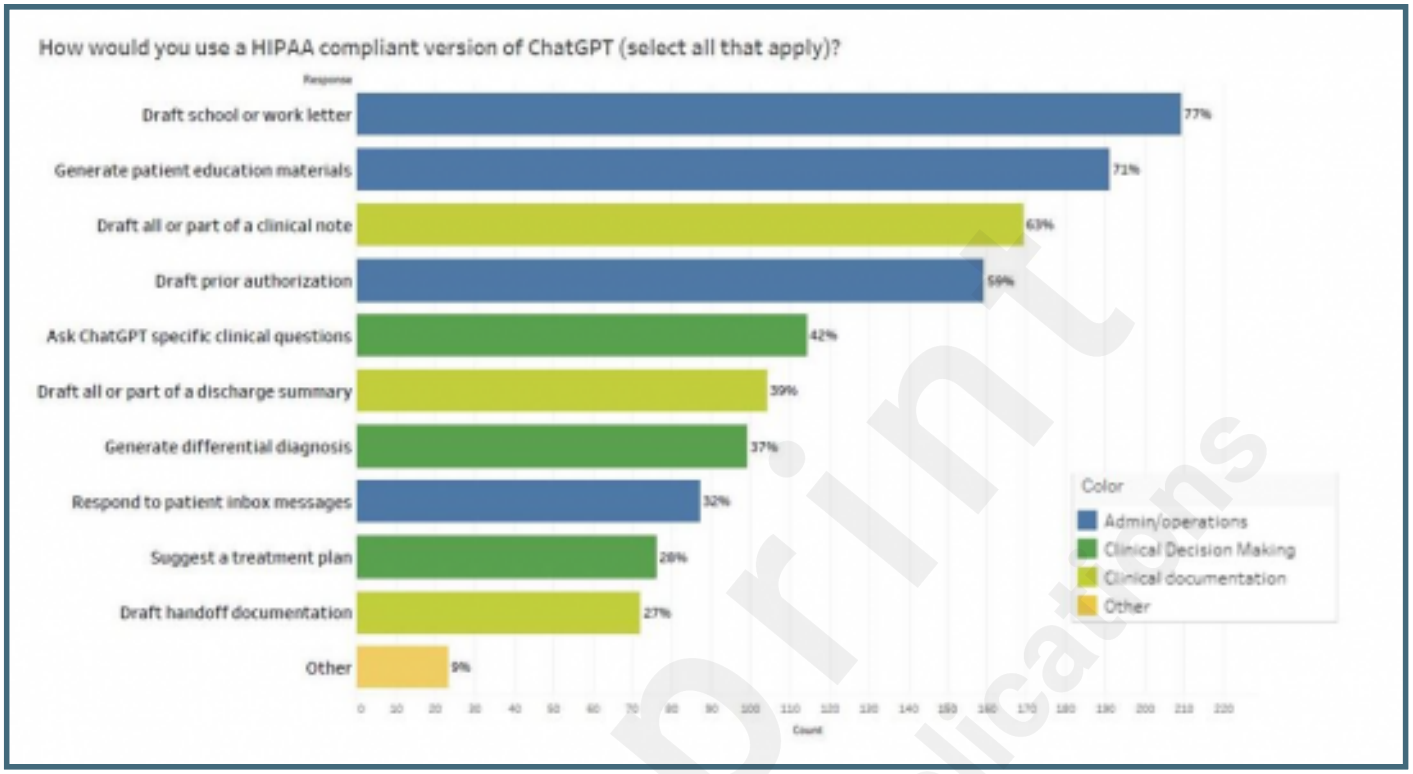
The percentage of respondents endorsing various uses of LLMs in their clinical work. Answer types are color coded by work type as shown in the legend. Respondents were allowed to select multiple options.



A. The percentage of respondents who endorsed a belief that ChatGPT should be used for patient care in its current state is shown in dark green; the percentage of respondents who disagreed is shown in light green. B. The percentage of respondents who would use a HIPAA-compliant version of ChatGPT is shown in dark green; the percentage of respondents who would not use such a tool is shown in light green.



Percentage of respondents endorsing various proposed uses of a HIPAA-compliant version of ChatGPT for clinical work if it were available. Answer types are color coded by work type as shown in the legend. Respondents were allowed to select multiple options.



Multimedia Appendixes

Supplemental Material: Survey Questions.
URL: http://asset.jmir.pub/assets/9b1cbc15ee725673c1fe61bc21fce313.docx

Supplemental Material: ChatGPT Survey Recruitment Email.
URL: http://asset.jmir.pub/assets/a777d9348bf74b4c346ac7768541ac26.docx