Healthcare Professional's Experiences and Opinions about Generative AI and Ambient Scribes in Clinical Documentation: Protocol for a Scoping Review

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Abstract

Background: Generative AI (GenAI) solutions using large language models (LLMs) are transforming healthcare. Specialized ambient GenAI tools, like Nuance Dax, Speke, and Tandem Health, "listen" to consultations and generate clinical notes. General non-clinical chatbots, such as ChatGPT, offer broad AI interactions. Medical-focused models, like Med-PaLM, provide tailored healthcare insights. GenAI's capability to summarize complex data and generate responses in various conversational styles or literacy levels makes it particularly valuable since it has the potential to alleviate the burden of clinical documentation on healthcare professionals (HCPs).
While GenAI may prove to be helpful offering novel benefits, it comes with its own set of challenges. The quality of the source data can introduce biases, leading to skewed recommendations or outright false information (so-called 'hallucinations'). In addition, due to the conversational nature of chatbot responses, users may be susceptible to disinformation, posing risks to both safety and privacy. Therefore, careful implementation and rigorous oversight are essential to ensure accuracy, ethical integrity, and alignment with clinical standards. Despite these advances, currently, no review has investigated HCPs' experiences and opinions about GenAI in clinical documentation. Such a perspective is crucial if these technologies are to be safely and ethically adopted and implemented in clinical practice.

Objective: To present the protocol for a scoping review exploring HCPs' experiences and opinions about GenAI and ambient scribes in clinical documentation.

Methods: This scoping review will be carried out following the methodological framework by Arksey and O'Malley and the PRISMA-ScR checklist. Relevant papers will be searched for in PubMed, IEEE Xplore, APA PsycInfo, CINAHL, and Web of Science. The review will include studies published between January 2023 and January 2025. Inclusion criteria will be original peer-reviewed work that explores healthcare professionals' experiences and opinions about the use of GenAI or ambient scribes for clinical documentation. Data extraction will include publication characteristics, sample characteristics, clinical setting, study aim, research question, and key findings. Study quality will be assessed using the Mixed Methods Appraisal Tool (MMAT).

Results: The results will be presented as a narrative synthesis structured along the key themes of the evidence mapped. Data will be collated and presented in charts and tabular format. Findings will be reported in a peer-reviewed scoping review.

Conclusions: This will be the first scoping review that considers HCPs' experiences and opinions about GenAI and ambient scribes in clinical documentation. The results will clarify how HCPs use - or avoid using - GenAI in daily healthcare work. This insight will help address perceived benefits, risks, expectations, and uncertainties. It may also reveal key research gaps in the field.

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Trial Registration: N/A

Keywords: artificial intelligence; generative artificial intelligence; gen AI; ambient scribes; healthcare professionals; clinical documentation; attitude; scoping review

Introduction

Background

Generative AI (GenAI), a subset of artificial intelligence, leverages large language models (LLMs) to analyze patterns in vast datasets and generate novel content [1–3]. Unlike search engines, which offer internet links in response to typed queries, LLM-powered GenAI solutions leverage the power of conversational formats, simulating human-like interactions [4].

Examples of current GenAI applications in healthcare include ambient GenAI scribes and GenAI chatbots. Ambient GenAI scribes such as Nuance Dragon Ambient eXperience (DAX) by Microsoft [5] uses GenAI and ambient listening to generate clinical documentation. The app captures patient conversations, uploads them to the cloud for AI processing, and generates a draft note. Human reviewers then revise the document before it is added to the provider's EHR where it is intended for final approval and signature [6]. Other examples include Speke by ScribeAmerica [7] and Tandem Health [8] which are designed to uphold healthcare patient privacy standards.

In addition, non-clinical GenAI chatbots such as OpenAI’s ChatGPT [9] are already being used to assist in clinical documentation [10]. Similarly, but specifically designed for the medical field, Med-Palm developed by Google Research [11], answers medical questions with accuracy and generates useful long-form responses. Both ambient scribes and chatbots signal the transformative potential of GenAI in clinical documentation.

Furthermore, since AI has the ability to synthesize complex data, and write responses in a desired conversational style or literacy level [12,13] it could be further beneficial in the context of patients’ online record access (ORA) [14,15]. Patient ORA is a rapidly growing innovation, already adopted in nearly 30 countries and expanding fast. Its reach is set to grow even further [16,17]. Patients in primary care with ORA often have partial or full online access to new information added to their health records through including test and laboratory results, medication lists, diagnoses, and treatments, as well as free-text entries about consultations [14]. Consequently, as more countries follow the adoption of ORA, the pressure on healthcare professionals (HCPs) to maintain comprehensive and comprehensible records increases [18]. In response, GenAI might help alleviate this burden on HCPs [19,20] by streamlining the documentation processes, enhancing patient comprehension, and improving the overall efficiency of healthcare services [4,13].

In healthcare, survey research shows important trends and insights in relation to technology and documentation. Namely, HCPs both desire and expect technological solutions to address their administrative burdens which are a significant source of burnout [19,20]. GenAI may therefore offer real potential to aid clinical documentation, which may be particularly attractive to HCPs' experiencing high burden of documentation [19,20].

The adoption of GenAI in healthcare, however, raises significant concerns, and studies show GenAI comes with its own challenges [4,21]. AI outputs can be biased, potentially exacerbating ageist, racial, or gender discrimination in healthcare due to omissions and biases present in the training data used [22–25]. Such "algorithmic biases" can result in unfair suggestions and discriminatory advice. They may also generate dangerous medical advice and are prone to producing incorrect information, i.e. "hallucinations" [25,26]. Users may be vulnerable to misinformation because of the conversational tone of their comments, which could endanger their privacy and safety [21,27]. Scientific literature highlights the technical difficulties of implementing ambient GenAI scribes for clinical documentation and provides guidelines for its ethical use [28–30]. Key challenges include

integration into existing workflows and potential high costs. It is crucial to identify which clinicians benefit most and set clear expectations beyond just time savings. Advantages could include improved efficiency and better documentation quality. While there may be an initial learning curve and increased documentation time, these challenges can improve with use and technological advances [31].

Thus, careful implementation and rigorous oversight are essential to ensure accuracy, ethical integrity, and alignment with clinical standards. Numerous studies have examined accuracy, efficiency, and output quality, offering advantages and disadvantages as well as suggestions for future research [4,6,12,13,27,28,31–33]. While these studies are essential, it is equally important to assess HCPs' experiences and opinions of using GenAI, since their insights are pivotal to the adoption and implementation of the technology in line with the practical realities of clinical work [10,19,20,34,35]. In the midst of the controversy, excitement, and doubts around AI's potential effects on medicine, healthcare professionals' perspectives have frequently been ignored [36].

Study Objectives

The objectives of this review are:

1. To identify, collate, and evaluate existing evidence on HCPs' experiences of GenAI tools, including chatbots and ambient AI, on clinical documentation.
2. To assess HCPs' opinions about, and perceived impact of, GenAI on documentation efficiency, quality, privacy, and the potential harms and benefits for HCPs and patients.
3. To identify research gaps to inform future investigations into HCPs' experiences and opinions on the use of GenAI and ambient AI for clinical documentation.

Methods

Scoping Review

A scoping review is well-suited for exploring emerging fields like GenAI in clinical documentation, as it maps the existing literature, identifies key themes, and highlights gaps in knowledge. Unlike a systematic review, which focuses on a narrowly defined question with strict inclusion criteria , a scoping review provides a broader overview, capturing diverse perspectives, methodologies, and contexts [37]. This approach is valuable for informing future research directions and policy considerations in a rapidly evolving technological landscape [37]. We will carry out a scoping review using the framework proposed by Arksey and O'Malley [37] consisting of the following five stages: (1) identifying the research question, (2) identifying the relevant studies, (3) selecting eligible studies, (4) collecting data, and (5) summarizing data and synthesizing results. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA ScR) checklist will be used to report the review [38,39]. The final publication will emphasize any further changes made to the study design.

Stage 1: Identifying the Research Question

Based on the objectives and iterative discussions within the research team, we agreed on the following research questions:

Primary research questions:

- RQ1. What is known from the literature about the uptake, experiences, and opinions among HCPs regarding the use of GenAI including ambient AI in clinical documentation?

Sub-questions:

1. To what extent have HCPs adopted GenAI chatbots and ambient scribes for clinical documentation?
2. What drives healthcare professionals' adoption of GenAI chatbots and ambient scribes?
3. What are the key themes and recurring patterns in HCPs' interactions with GenAI and ambient scribes in clinical documentation?
4. How do HCPs perceive the benefits and challenges of using GenAI and ambient scribes in documentation?
5. What ethical considerations and concerns do HCPs raise regarding the integration of GenAI and ambient scribes in documentation?
6. Is the use of GenAI and ambient scribes for documentation associated with HCPs' perceptions about efficiency, workflow, and job satisfaction?
7. What gaps exist in the literature regarding HCPs' experiences, and opinions about GenAI and ambient AI in clinical documentation?

We employed the SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) [40] framework to systematically formulate our research questions and guide the selection of relevant studies as summarized in Table 1.

During the preliminary test searches conducted for the scoping review, the research team observed that setting limitations on the study design within the SPIDER framework excluded relevant articles. This exclusion happened because several studies' metadata either did not identify the design or provided insufficient detail. As a result, the authors decided to remove the design search block from the SPIDER framework. This modification maximizes the retrieval of relevant data by ensuring no design constraints are applied in the search string.

Table 1. SPIDER framework

SPIDER Dimension	Description
Sample	Healthcare professionals (e.g., doctors, nurses, or dentists)
Phenomenon of Interest	Use of GenAI including GenAI apps and ambient scribes to write documentation.
Design	No limitations
Evaluation	Experiences and opinions
Research Type	Qualitative methods, quantitative methods, or mixed methods

Stage 2: Identifying Relevant Studies

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram[39] outlines the process of screening relevant studies as Figure 1 shows. An experienced research librarian from Uppsala University, Sweden will handle the deduplication procedure.

The search strategy was developed through an iterative process by CGS and the Uppsala University library. The first list of search phrases was compiled using seed references, and it was further refined through conversations between the library and co-author CGS. It is composed of four main concepts: (1) HCPs; (2) GenAI; (3) clinical documentation; and (4) experiences and opinions which were combined with the Boolean AND and OR as seen in Textbox 1. The literature search will be done in the following five databases: PubMed, IEEE Xplore, APA PsycInfo, CINAHL, and Web of Science. The search terms were tailored to different databases. The whole search query is available in Multimedia Appendix 1.

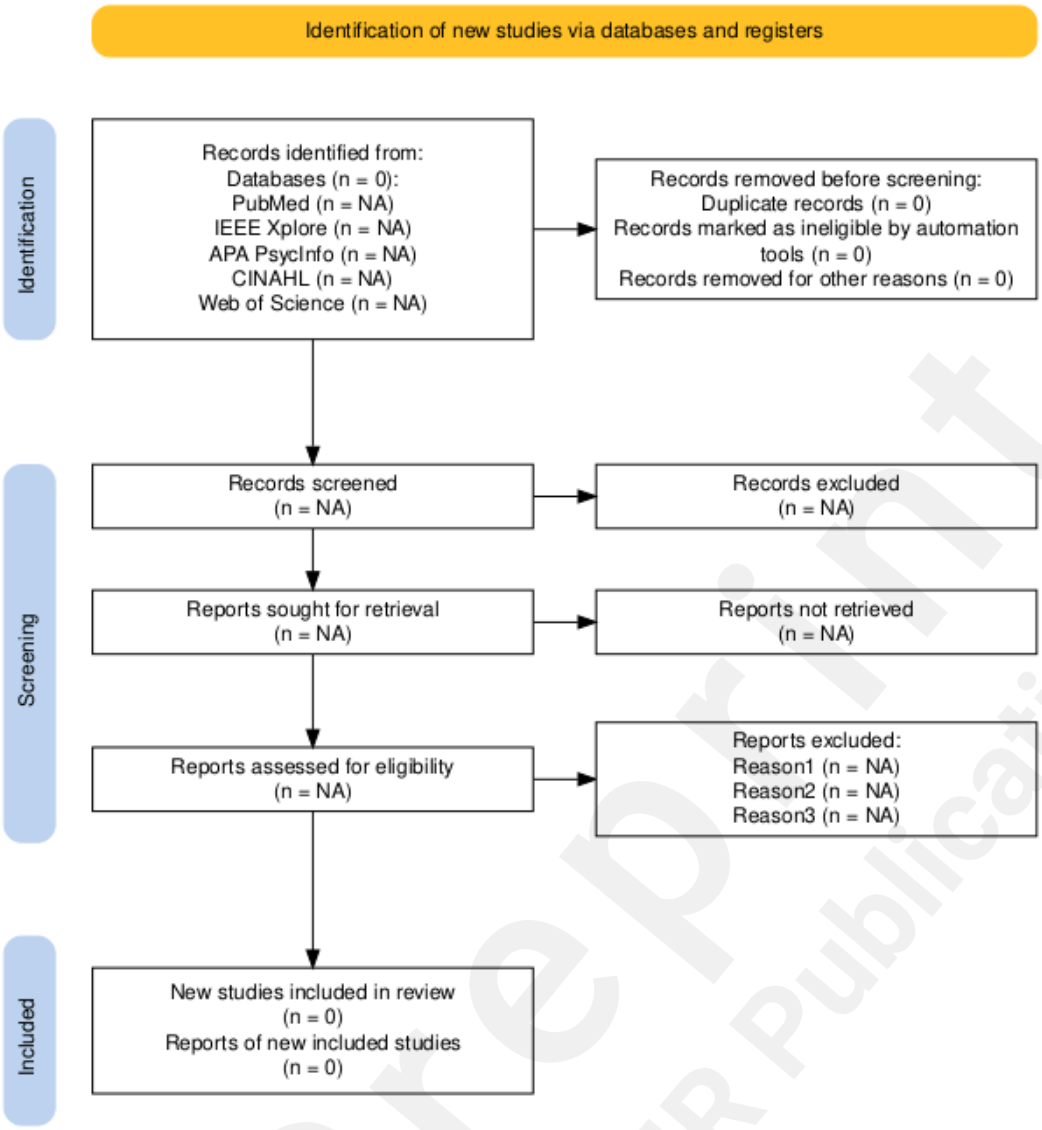

Figure 1. PRISMA Flow Diagram**:** A step-by-step illustration of the multistage screening process for source selection in the scoping review, created using the Shiny app web-based tool [41,42].

Textbox 1. Key concepts of the search strategy.

Healthcare professionals search string

- "Health Personnel"[Mesh] OR "Medical staff"[Mesh] OR "health personnel"[Title/Abstract] OR "medical staff"[Title/Abstract] OR "healthcare professional*"[Title/Abstract] OR "health care professional*"[Title/Abstract] OR HCPs[Title/Abstract] OR "healthcare worker*"[Title/Abstract] OR "health care worker*"[Title/Abstract] OR "health care provider*"[Title/Abstract] OR "healthcare provider*"[Title/Abstract] OR physician*[Title/Abstract] OR nurs*[Title/Abstract] OR clinican*[Title/Abstract]

Generative AI search string

- "Artificial Intelligence"[Mesh] OR "Natural language processing"[Mesh] OR GenAI[Title/Abstract] OR chatbots[Title/Abstract] OR ChatGPT[Title/Abstract]

OR "artificial intelligence"[Title/Abstract] OR AI-based[Title/Abstract] OR "natural language processing*"[Title/Abstract] OR "summarization tools"[Title/Abstract] OR "machine intelligence"[Title/Abstract] OR AI[Title/Abstract] OR “ambient intelligence”[Title/Abstract] OR “ambient scribes”[Title/Abstract]

Clinical documentation search string

- "Documentation"[Mesh] OR "Medical records systems, computerized"[Mesh] OR "Electronic Health Records"[Mesh] OR "Health Records, Personal"[Mesh] OR "Patient Discharge"[Mesh] OR "Patient Discharge Summaries"[Mesh] OR documentation*[Title/Abstract] OR "medical record*"[Title/Abstract] OR "clinical note*"[Title/Abstract] OR "medical note*"[Title/Abstract] OR "clinical record*"[Title/Abstract] OR "patient discharge*"[Title/Abstract] OR "health record*"[Title/Abstract] OR "patient record*"[Title/Abstract]

Experiences and opinions search string

- "Attitude of Health Personnel"[Mesh] OR "Attitude"[Mesh] OR experience*[Title/Abstract] OR opinion*[Title/Abstract] OR attitude*[Title/Abstract] OR efficiency[Title/Abstract] OR quality[Title/Abstract] OR "patient understanding"[Title/Abstract] OR "ethical implication*"[Title/Abstract] OR "privacy implication*"[Title/Abstract] OR perception*[Title/Abstract] OR reaction*[Title/Abstract] OR response*[Title/Abstract

Stage 3: Selecting Eligible Studies

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria, as seen in Textbox 2, were defined by the entire research team and will be applied in the study selection process. This review will include formally published peer-reviewed journal articles and conference papers that have undergone peer-review, and exclude grey literature, opinion pieces, letters, protocols, reviews, and other publications that do not represent original research. Exceptions will be made for cases where a source includes original data along with adequate methodological and analytical details. No geographic limitations will be applied to ensure a comprehensive overview of global perspectives. Due to resource constraints, the study will exclusively include articles published in English. The research team acknowledges that this approach limits the inclusion of studies performed in different parts of the world and published in other languages.

Textbox 2. Inclusion and exclusion criteria

Inclusion criteria

- Study design: case studies, surveys, focus groups, and interviews, pilot programs, ethical and legal considerations, and longitudinal studies.
- Publication: original, peer-reviewed work including empirical data published between January 2023 and January 2025 in English.
- Study location: all medical disciplines, all health care settings, no location restrictions.
- Study participants: health care professionals.
- Studies that examine HCPs experience and opinions on the use of GenAI and

ambient scribes for clinical documentation.

Exclusion criteria

- Reviews, such as systematic, scoping, and meta-analyses.
- Grey literature, including opinion pieces, protocols, and reviews.
- Grey data, such as websites, tweets, and blogs.
- Studies that quantitatively measure and assess the effectiveness, accuracy, or performance of GenAI and ambient scribes for clinical documentation.

Study Selection Process

We will perform a collaborative, blinded screening of abstracts and titles using Covidence software [43]. Every member of the research team will take part in this procedure, and at least two people will review each record of the result set. The entire texts of the relevant research will be considered when discussing discrepancies. A third reviewer will be involved and given the authority to decide whether to include or exclude the study in the event that differences cannot be settled.

Stage 4: Collecting Data

After selecting the studies to include, metadata (e.g., title, authors, and publication year) of the remaining records will be exported and summarized in a Google Sheets (Google LLC) spreadsheet for further processing. The spreadsheet will be extended by the following and other parameters based on the studies' full text: publication type, country, sample characteristics, setting, study aim, research question, and conclusions. This will allow us to extract and organize relevant data from included studies. The results will be presented in diagrams or tabular format for a clear and comprehensive visualization. All members of the study team will participate in the data extraction process. Additionally, the first author will verify that the data extraction is accurate and comprehensive. The Mixed Methods Appraisal Tool (MMAT) [44] will be used to evaluate the studies' quality and methodological rigor. All studies included will be graded by two researchers separately, and their findings will be approved by a third independent researcher who will be consulted if no consensus can be obtained.

Stage 5: Summarize Data and Synthesizing Results

Narrative Synthesis

Study results will be extracted from the full texts by the lead author and summarized in (1) a reduced format within a textbox, providing an overview of the findings from all included studies, and (2) a detailed version for narrative synthesis. The latter will be analyzed independently by at least 2 researchers using thematic analysis [45]. Experiences and opinions of HCPs will be used as guiding deductive themes and are informed by the research question but may change in the analytical process. As Levac et al. [38] suggest, we aim to explore HCPs' perspectives on the potential of both GenAI apps and ambient AI tools to reduce documentation burdens in creating clinical notes for patients. It will also examine the associated benefits (clarity, speed, ability to translate complex medication information), risks (such as mistakes, biases, and patient privacy), and their opinions based on their experiences. In assessing the methodological rigor of the studies, we also envisage the potential to identify research gaps; for example, we predict there may be perceived privacy and ethical concerns pertaining to the potential for errors and liability associated with these tools. Results will then be discussed and approved by the entire research team.

Assessing the Robustness of the Synthesis

The robustness of the narrative synthesis depends on the quality of included studies as well as on the trustworthiness of the synthesis [46]. In order to minimize bias, we will conduct the study quality appraisal through MMAT [44] to ensure that studies of equal technical quality are given equal

weight.

Ethical Considerations

This study is not subject to ethical approval since only publicly available data material will be used with the scoping review methodology.

Results

The main results from our analysis will be presented in a narrative form, reflecting themes that are extracted from the literature about the experiences and opinions of HCPs about GenAI and ambient AI in clinical documentation. Additional data on publication year, publication type, country, sample characteristics, setting, study aim, research question, and conclusions will be presented in diagrams or tabular format.

Discussion

While some reviews explore HCPs' perspectives on AI in healthcare in general [47–54], none specifically examine their experiences and opinions on using GenAI for clinical documentation. Our scoping review aims to map current research on this issue. This approach aims to clarify how HCPs are - or are not - integrating GenAI into their daily work, helping to address perceived benefits, risks, expectations, and uncertainties. Results also may help to identify research gaps in this field of research.

Limitations

As GenAI rapidly evolves, a potential limitation of the study is that the findings may soon become outdated. Additionally, the exclusion of non-English language studies might lead to the omission of relevant studies. Furthermore, the exclusion of gray literature means that some studies will be overlooked. Nevertheless, our search strategy is designed to identify the most comprehensive and high-quality evidence.

Acknowledgements

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We greatly appreciate the valuable assistance of Uppsala University librarian Emma Kristina Carlsson with our scoping review. Her expertise in research databases and guidance in refining our search strategy were crucial in the design of a robust study protocol.

Data Availability

The data used for the scoping review are openly available and can be retrieved from the following databases: PubMed, IEEE Xplore, APA PsycInfo, CINAHL, and Web of Science.

Author's Contribution

CGS drafted the manuscript. CGS and CB were responsible for the conception of the study. All authors read, provided feedback, and approved the paper for submission.

Conflict of Interest

None declared.

Abbreviations

GenAI: generative artificial intelligence
HCP: healthcare professionals
LLMs: large language models
MMAT: Mixed Methods Appraisal Tool
ORA: online record access
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PRISMA ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews
SPIDER: Sample, Phenomenon of Interest, Design, Evaluation, Research type

Multimedia Appendix

Adapted search strategies for each database.

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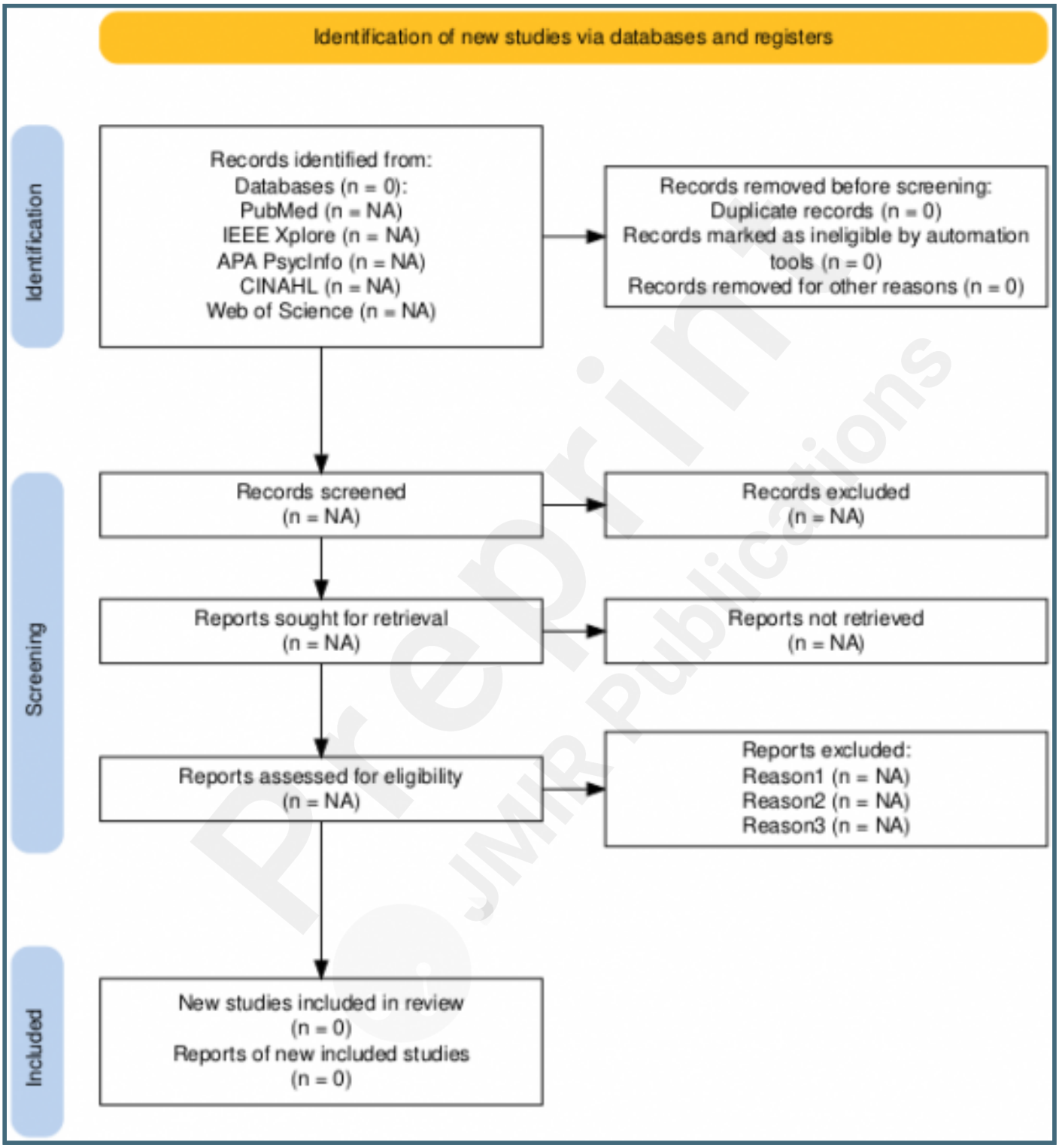
Supplementary Files

Figures

PRISMA Flow Diagram: A step-by-step illustration of the multistage screening process for source selection in the scoping review, created using the Shiny app web-based tool.



Multimedia Appendixes

Adapted search strategies for each database.
URL: http://asset.jmir.pub/assets/51b97d9c0cb2ac716663da315792aeed.docx