

Research Article

PERCEIVED ADEQUACY AND INFORMATIONAL QUALITY OF AN ARTIFICIAL INTELLIGENCE-GENERATED PRE-ANAMNESIS IN EMERGENCY DEPARTMENTS

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ABSTRACT

Artificial intelligence has been increasingly incorporated into emergency care to support documentation and clinical workflow, but its real-world value depends on physician acceptance. This cross-sectional descriptive study evaluated physicians' perceptions of a pre-anamnesis generated by an artificial intelligence system used in the adult and paediatric emergency departments of a private tertiary-care hospital in Manaus, Brazil. SAMIA, an institutional artificial intelligence assistant integrated into the electronic health record, generates pre-anamnesis summaries before physician evaluation. All physicians working in these settings were invited to complete an anonymous online survey. A total of 74 physicians participated. Regarding contextual adequacy, 70 (94.6%) considered the generated pre-anamnesis at least partially adequate in their clinical encounters, whereas 4 (5.4%) reported that it was rarely adequate. Regarding informational content, 48 (64.8%) rated it as adequate or excellent, whereas 26 (35.2%) considered it less than optimal. These findings suggest substantial physician acceptability, while highlighting contextual precision and informational calibration as priorities for further refinement.

Keywords: Artificial intelligence; emergency department; physician perception.

INTRODUCTION

Artificial intelligence (AI) has been increasingly incorporated into emergency care. They are particularly relevant environments for these applications because they operate under sustained time pressure, high patient turnover, and continuous inflow of fragmented clinical information. Their value in practice depends not only on technical performance, but also on their ability to integrate into real clinical workflows and support health professionals under acute care conditions (Yi *et al.*, 2025).

One area in which this need is especially evident is the early organization of clinical information before physician assessment. Clinical documentation burden has become an important contributor to stress and burnout among physicians, with almost twice as much time devoted to administrative documentation tasks as to direct patient care (Gesner *et al.*, 2019; Sinsky *et al.*, 2016). AI has therefore emerged as a potentially useful approach for documentation support at the point of care (Van Veen *et al.*, 2024).

SAMIA (Samel Artificial Intelligence) is an institutional AI assistant integrated into the electronic health record and implemented in the adult and pediatric emergency departments of a private tertiary-care hospital in Manaus, Brazil. It supports documentation, generates automated pre-anamnesis from pre-triage and triage data, provides differential diagnostic and initial management suggestions, summarizes emergency department test results, and assists with evidence-based prescribing. It also includes AI-based virtual specialty modules that provide real-time specialty-specific guidance within the electronic health record.

Since the implementation of physician-facing AI tools depends not only on availability but also on clinician acceptance and perceived usefulness, understanding physician perception is an essential early step in evaluating their real-world applicability. Accordingly, the present study aimed to describe physicians' perceptions of the contextual adequacy and informational content of the pre-anamnesis generated by SAMIA in routine emergency department practice.

METHODS

Study design and setting

This cross-sectional descriptive study was conducted at a private tertiary-care hospital in Manaus, Brazil. At the time of the study, SAMIA, an AI assistant integrated into the institutional electronic health record, was being used in the adult and pediatric emergency departments to generate pre-anamnesis summaries intended to support the initial clinical assessment.

Participants and data collection

All physicians working in the adult and pediatric emergency departments were invited to participate in an anonymous online survey distributed through the hospital's institutional communication platform. Participation was voluntary. No identifiable physician information was collected, and no patient-level data were accessed for the purposes of this study.

Study variables

The survey evaluated physicians' perceptions of the pre-anamnesis generated by SAMIA in two domains: contextual adequacy in relation to the clinical encounter and perceived quality of the information

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provided. Responses were recorded using prespecified categorical response options.

Statistical analysis

Given the descriptive nature of the study and the use of aggregated survey responses, the analysis was limited to descriptive statistics. Categorical variables are presented as frequencies and proportions.

RESULTS

A total of 74 physicians working in the adult and pediatric emergency departments completed the survey. Regarding the contextual adequacy of the pre-anamnesis generated by SAMIA, 70 physicians (94.6%) considered it at least partially adequate in their clinical encounters, whereas 4 (5.4%) reported that it was rarely adequate. Regarding the informational content of the generated pre-anamnesis, 48 physicians (64.8%) rated it as adequate or excellent, whereas 26 (35.2%) considered it less than optimal, citing either insufficient conciseness or excessive genericity.

DISCUSSION

This study shows that SAMIA achieved a meaningful degree of physician acceptability as a pre-anamnesis tool in the adult and pediatric emergency departments, while also revealing that contextual precision and informational calibration remain central to its maturation. The relevance of these findings lies in the setting itself. Emergency care is marked by time-sensitive decisions, frequent interruptions, and rapid shifts in attention, which make any tool that helps organize clinical information potentially valuable, but also highly vulnerable to rejection if it does not fit real workflow demands (Tran *et al.*, 2020).

The high proportion of physicians who regarded the pre-anamnesis as at least partially adequate suggests that SAMIA was not perceived merely as a theoretical resource, but as something with practical utility in day-to-day encounters. In implementation terms, physician-facing AI tools rarely succeed because they are flawless. They succeed when they are sufficiently useful to be incorporated into fast clinical reasoning without creating disproportionate correction work (Meng *et al.*, 2024).

The results related to informational content deepen this interpretation. The fact that most respondents judged the generated content to be adequate or better suggests that SAMIA is already reaching a threshold of informational usefulness for many clinicians. However, dissatisfaction may emerge when information is too generic or insufficiently prioritized for the immediate clinical question. For emergency physicians, the problem is rarely simple access to data. It is rapid access to the right data, framed at the right level of granularity. This is why informational quality in this setting should be understood less as volume and more as precision. The organization and presentation of information strongly influence whether a digital system reduces workload or adds a new layer of cognitive filtering (Moy *et al.*, 2023).

Another important implication is that physician perception itself should be treated as a substantive implementation outcome. In many institutional AI projects, early evaluation focuses primarily on technical feasibility or deployment status. However, if clinicians perceive a system as only inconsistently relevant, even strong technical architecture may not translate into durable use. For this reason, the current results are not merely descriptive feedback.

A system that becomes more context-aware and more selective in the information it presents is not merely incrementally better. It becomes better aligned with how emergency physicians think and work. This may allow human-AI collaboration to outperform the physician working alone (Vaccaro *et al.*, 2024).

Several limitations should be considered when interpreting these findings. The evaluation had a focused scope and captured only a restricted dimension of physician experience with the tool. In addition, the use of aggregated response data did not allow assessment of whether perceptions varied according to physician characteristics. Despite these limitations, this study provides real-world evidence that an institutional AI-generated pre-anamnesis can achieve substantial physician acceptability in emergency care while still exposing clinically meaningful targets for refinement. Future studies should examine how physician perception relates to objective measures.

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