

PERCEIVED BENEFITS OF ELECTRONIC HEALTH RECORDS ON HEALTHCARE DELIVERY IN PUBLIC HEALTH FACILITIES IN HO MUNICIPALITY, GHANA

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Author's contributions

This study was a collaborative effort of the authors. The authors reviewed and approved the final version of the manuscript for publication.

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ABSTRACT

Electronic Health Records (EHRs) have been introduced in Ghanaian public health facilities to address inefficiencies associated with paper-based documentation systems. This study assessed the perceived benefits of EHR implementation on healthcare delivery in Ho Municipality, Ghana. A cross-sectional descriptive study was conducted between January and March 2020 among 334 healthcare professionals from three public health facilities. Data were collected using a structured 5-point Likert-scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree). The instrument demonstrated good internal consistency (Cronbach's alpha = 0.84). Data were analysed using SPSS version 21 using frequencies, percentages, means, and standard deviations. Agreement represented the combined responses of "Agree" and "Strongly Agree." Respondents reported improved customer service (84.2%), reduced billing and National Health Insurance Scheme claims processing time (90.5%), increased productivity (80.0%), improved data security (90.4%), and reduced duplication of patient records (86.7%). The findings suggest notable perceived operational and administrative benefits associated with EHR use. Sustained infrastructure investment, system optimization, and continuous user training are recommended to enhance long-term impact.

Keywords: Electronic health records; perceived benefits; healthcare delivery; data security; Ghana

INTRODUCTION

Health systems globally are transitioning from paper-based medical records to Electronic Health Records (EHRs) to improve documentation quality, workflow efficiency, accountability, and service delivery outcomes.

In low- and middle-income countries (LMICs), paper-based record systems are frequently associated with delayed retrieval of patient information, duplication of files, fragmented documentation, billing inefficiencies, and limited data security controls (Kumar C Mostafa, 2020; Adetoyi C Raji, 2020). These systemic inefficiencies can compromise continuity of care, reduce administrative efficiency, and weaken health system performance. Digital health reforms have accelerated across sub-Saharan Africa over the past decade. Ghana has implemented several digital health initiatives, including facility-level EHR platforms such as the Lightwave Health Information Management System (LHIMS), alongside national health information systems aimed at strengthening reporting and insurance claims management (Agyemang *et al.*, 2023; Boateng *et al.*, 2023). Evidence suggests that properly implemented EHR systems can enhance billing efficiency, improve claims turnaround time, reduce documentation errors, and strengthen data governance (Achampong, 2022; Nutley *et al.*, 2020). Despite these advancements, implementation outcomes vary considerably across facilities. Successful EHR adoption depends on infrastructure reliability, leadership commitment, organizational readiness, and user acceptance (Attafuah *et al.*, 2022; Antor *et al.*, 2024). Studies conducted in Ghana have identified improved workflow and administrative efficiency following EHR implementation, but they have also reported persistent challenges such as intermittent internet connectivity, limited hardware availability, and insufficient technical support (Essuman *et al.*, 2020; Mensah *et al.*, 2023). User perception is a critical determinant of sustained EHR utilization. Technology acceptance theories suggest that perceived usefulness and perceived ease of use directly influence system adoption and continued use (Dehghan *et al.*, 2025). Positive provider perceptions are therefore essential for long-term digital health sustainability. While national and regional evidence on EHR adoption in Ghana is growing, municipal-level empirical evidence specifically assessing perceived operational and administrative benefits among frontline providers remains limited. Ho Municipality represents a relevant context for such evaluation due to active EHR implementation across multiple public facilities. This study therefore assessed healthcare providers' perceived benefits of Electronic Health Record implementation on healthcare delivery in public health facilities in Ho Municipality, Ghana.

METHODOLOGY

Study Design

A cross-sectional descriptive design was adopted. This design is appropriate for assessing perceptions at a specific point in time without manipulation of study variables.

Study Setting

The study was conducted in Ho Teaching Hospital, Ho Municipal Hospital, and Ho Polyclinic in the Volta Region of Ghana. Facilities were purposively selected based on established EHR implementation and routine operational use.

Study Population and Eligibility

Participants included clinical and administrative staff who had used the EHR system for at least six months prior to the study. Staff without direct interaction with the system were excluded.

Sample Size Determination

Cochran's formula was applied:

$$n = \frac{Z^2 p(1 - p)}{d^2}$$

Where:

Z = 1.96 (95% confidence level)

p = 0.5

d = 0.05

After finite population correction, the final sample size was 334 respondents.

Sampling Technique

Simple random sampling was conducted using updated departmental staff lists as the sampling frame.

Data Collection Instrument

A structured questionnaire was developed comprising demographic items and 5-point Likert-scale statements (1 = Strongly Disagree; 5 = Strongly Agree). The instrument assessed perceived benefits in the domains of:

- Customer service
- Billing and NHIS claims processing
- Productivity
- Data security
- Reduction of duplication

Content validity was ensured through expert review. Pilot testing was conducted among 10 healthcare workers in a comparable facility. Internal consistency reliability yielded Cronbach’s alpha = 0.84.

Data Collection Procedure

A total of 350 questionnaires were distributed; 334 were returned, representing a response rate of 95.4%.

Data Analysis

Data was analysed using SPSS version 21. Frequencies, percentages, means, and standard deviations were computed. Agreement represents combined “Agree” and “Strongly Agree” responses.

Ethical Considerations

Ethical approval was obtained from the Ghana Health Service Ethics Review Committee (GHS-ERC 040/06/20). Participation was voluntary and anonymous.

RESULTS

A total of 334 respondents participated in the study.

Table 1: Perceived Benefits of EHR Implementation (N = 334)

Perceived Benefit	Agreement (%) (Agree + Strongly Agree)	Mean ± SD
Improved customer service	84.2	4.12 ± 0.78
Reduced billing C NHIS claims time	90.5	4.35 ± 0.64

Increased productivity	80.0	4.05 ± 0.83
Improved data security	90.4	4.41 ± 0.59
Reduced duplication of records	86.7	4.22 ± 0.71

Note: Agreement percentages represent the combined responses of 'Agree' and 'Strongly Agree' (N=334).

DISCUSSION

The findings indicate strong perceived administrative and operational benefits associated with EHR implementation. Reduced billing and NHIS claims processing time was the most highly rated benefit, supporting national digital health objectives aimed at improving financial and administrative efficiency (Agyemang *et al.*, 2023; Boateng *et al.*, 2023). Improved data security aligns with expectations that digital systems enhance access control, data integrity, and record traceability (Achampong, 2022; Shaw *et al.*, 2020). Perceived improvements in productivity and reduced duplication are consistent with prior Ghanaian studies demonstrating improved documentation processes following EHR adoption (Mensah *et al.*, 2024; Essuman *et al.*, 2020). However, literature emphasizes that realized benefits depend on infrastructure stability, training adequacy, and system usability (Antor *et al.*, 2024; Zharima, Griffiths, and Goudge, 2023). Because this study assessed perceptions rather than objective service delivery indicators, the findings should be interpreted as reported experiences rather than measured performance outcomes.

LIMITATIONS

The cross-sectional design limits causal inference. Self-reported responses may be subject to recall or social desirability bias. The study was conducted in three facilities within one municipality, which may limit generalizability. Objective performance indicators such as waiting time or claims turnaround duration were not measured.

CONCLUSION

Healthcare providers in Ho Municipality reported notable perceived operational and administrative benefits associated with EHR implementation. While findings suggest positive provider experiences, further research incorporating objective service delivery indicators is recommended to establish measurable impact.

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