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Mentorship as a Catalyst for AI-Ready Health Information Management in Nigeria: Building an Ethical and Future-Ready Digital Health Workforce

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Abstract: Artificial intelligence (AI) is changing how health data are generated, curated, analysed, exchanged, and used for decisions. In Nigeria, Health Information Management professionals occupy a strategic position between clinical practice, administration, technology, regulation, and public health, yet longstanding digital skills and infrastructure gaps may limit their ability to govern AI-enabled systems safely. This review examines mentorship as a practical mechanism for building an ethical and future-ready Health Information Management workforce. Evidence from Nigeria, sub-Saharan Africa, and other low- and middle-income settings was synthesised alongside digital-health competency frameworks and authoritative governance guidance. The review identifies six connected competency domains: data and AI literacy, data quality and interoperability, privacy and cybersecurity, ethics and bias appraisal, implementation leadership, and continuous evaluation. It proposes a context-sensitive MENTOR-AI framework that combines competency mapping, supervised workplace projects, ethical reflection, peer learning, and measurable service outcomes. Mentorship should complement formal education and institutional investment rather than substitute for them. Nigerian health institutions, professional bodies, universities, and government agencies should embed structured mentorship into digital-health transformation while protecting patients, strengthening local data stewardship, and evaluating effects on workforce capability and health-system performance.

Keywords: Artificial intelligence, Digital health workforce, Health information management, Mentorship

Introduction

Artificial intelligence is moving from experimental health applications into routine functions such as clinical decision support, image interpretation, predictive analytics, fraud detection, patient-flow management, coding assistance, surveillance, and administrative automation. These applications depend on reliable data, transparent governance, appropriate human oversight, and professionals who understand both information processes and the realities of health service delivery. Consequently, readiness for AI is not achieved by purchasing software alone. It requires a workforce able to judge data provenance, detect quality defects, recognise bias, protect confidentiality, interpret model outputs, communicate uncertainty, and participate in the safe redesign of work.

Health Information Management professionals are well placed to perform this translational role. Their responsibilities span the creation, classification, storage, protection, exchange, analysis, and lawful use of health information. They therefore connect clinicians, patients, administrators, public-health agencies, software developers, data scientists, and regulators. In an AI-enabled health system, this position expands from records stewardship to active participation in data governance, algorithm oversight, interoperability, quality assurance, and implementation evaluation. However, expanded responsibility without corresponding competence and institutional authority can create risks for patients and workers.

Nigeria illustrates both the urgency and the opportunity. A nationwide study of 374 Health Information Management professionals found widespread recognition of the importance of information technology, but reported substantial skill and implementation gaps; only a small proportion worked in environments where

computerised health-information systems were operating (Adeleke et al., 2015). Subsequent Nigerian studies have documented uneven technology adoption in Health Information Management education, limited specialised training, gaps in basic information-technology skills, and persistent infrastructure constraints (Obimba et al., 2022; Olaleye et al., 2024; Umar, 2024). A study covering Nigeria's six geopolitical zones also found that many health professionals held favourable views of AI and machine learning, while knowledge levels remained uneven and respondents emphasised the need for policy and capacity development (Adigwe et al., 2024). These findings suggest that willingness to engage with technology does not automatically translate into readiness to select, govern, or evaluate AI safely.

Conventional workshops can introduce concepts, but they often struggle to transfer learning into complex workplaces. Mentorship offers a complementary approach in which a more experienced practitioner supports another professional over time through guided practice, feedback, reflection, networking, and progressively greater responsibility. Evidence from African health-system programmes indicates that mentorship and coaching can improve data use, leadership, accountability, staff confidence, and quality-improvement practice when adapted to local conditions (Manzi et al., 2017). This review argues that structured mentorship can serve as a catalyst for AI-ready Health Information Management in Nigeria, provided it is ethically grounded, locally owned, institutionally supported, and evaluated against meaningful outcomes.

Review Approach

This narrative review used a purposive, concept-led search to integrate literature across Health Information Management, digital-health workforce development, mentorship, routine health-information systems, AI education, and ethical governance. PubMed and African Journals Online (AJOL) were searched for English-language publications, with emphasis on January 2015 to 16 August 2026. AJOL was included to improve retrieval of Nigerian and African evidence that may be underrepresented in global bibliographic databases. Search concepts included combinations of “mentorship,” “mentoring,” “Health Information Management,” “health information systems,” “health informatics,” “artificial intelligence,” “AI literacy,” “digital health competencies,” “Nigeria,” “Africa,” “sub-Saharan Africa,” and “low- and middle-income countries.” Reference lists and DOI metadata from relevant reviews and empirical studies were also used to identify foundational work and verify citations.

Priority was given to peer-reviewed Nigerian evidence, African health-system studies, reviews of mentorship or digital competence, and authoritative policy documents from the World Health Organization and the Nigeria Data Protection Commission. Sources were interpreted thematically rather than pooled statistically because the literature spans different professions, interventions, outcomes, and settings. This approach is appropriate for conceptual development and identification of practical connections, but it is not a systematic review and does not claim exhaustive retrieval or formal risk-of-bias assessment. Direct evidence on mentorship specifically for AI-ready Health Information Management professionals in Nigeria remains limited; therefore, some conclusions are reasoned transfers from adjacent health-informatics, workforce, and health-system evidence.

Health Information Management in Nigeria's AI Transition

AI readiness begins with the quality and organisation of underlying information. Models trained or operated on incomplete, inconsistent, delayed, or unrepresentative data can produce inaccurate and inequitable outputs. Routine health-information systems in many low- and middle-income settings continue to face interacting technical, behavioural, and organisational constraints. A scoping review found that interventions combining technology enhancement, capacity building, data-quality assessment, and feedback were more promising than isolated technological measures, while organisational factors were frequently neglected (Lemma et al., 2020). This finding is directly relevant to AI: algorithms cannot compensate reliably for weak information processes, and automation may amplify existing defects at greater speed and scale.

Nigerian experience demonstrates that practical, workplace-centred support can change information behaviour. In private hospitals in Lagos, a multifaceted intervention that included stakeholder engagement, on-the-job training, in-facility mentoring, data tools, and job aids produced large improvements in routine reporting rates and timeliness, with gains sustained after the intervention period (Ohiri et al., 2023). Although this intervention was not designed around AI, it shows that mentorship can help translate standards and tools into routine information practice. Similarly, data-quality initiatives across African countries have highlighted the value of collaborative assessment, feedback, and capacity strengthening for improving health management information systems (Yourkavitch et al., 2019).

The Nigerian Health Information Management workforce therefore enters the AI era with a dual task. It must continue strengthening foundational functions such as documentation, coding, data quality, security, and reporting while acquiring new capabilities for algorithm-enabled environments. Treating AI as a separate specialist topic would be counterproductive. AI competence should instead be integrated into the daily stewardship of health data and into the professional responsibility to ensure that information is fit for clinical, managerial, research, and public-health purposes.

Recent AJOL-indexed evidence sharpens this workforce picture. In two tertiary facilities in Enugu, fewer than half of 142 health-records personnel reported adequate use of information-technology applications and only 21.8% had specialised Health Information Management training; several documentation procedures also performed below the study's criterion standard (Obimba et al., 2022). At Ahmadu Bello University Teaching Hospital, 75 respondents identified basic information-technology skills, infrastructure, funding, electricity, and connectivity as barriers to digital records (Umar, 2024). Among 50 Health Information Management lecturers in Ondo State, technology adoption was described as moderate, with perceived ease of use positively associated with adoption (Olaleye et al., 2024). These cross-sectional findings cannot establish causality or represent all Nigerian institutions, but they identify practical targets for workplace mentorship.

Table 1. Nigerian evidence informing mentorship for AI readiness

Study and setting	Main finding	Mentorship implication
Adeleke et al. (2015), nationwide Health Information Management workforce	Professionals valued information technology, but substantial training and implementation gaps remained.	Begin with role-specific baseline assessment and supervised digital practice.
Obimba et al. (2022), two tertiary facilities in Enugu	Limited specialised training, uneven information-technology use, and substandard documentation procedures were reported.	Link digital upskilling to documentation standards, audit, and feedback.
Umar (2024), teaching hospital in Kaduna State	Basic skills, infrastructure, funding, electricity, and connectivity constrained digital-record practice.	Combine mentoring with institutional remedies; do not individualise structural barriers.
Olaleye et al. (2024), Health Information Management lecturers in Ondo State	Technology adoption was moderate and perceived ease of use supported adoption.	Prepare educators as mentors and use accessible, task-relevant digital tools.
Ibraheem (2026), six primary-care facilities in Kwara State	Seventeen respondents showed high mHealth awareness, but the study stressed implementation and training conditions.	Convert awareness into supervised implementation while recognising the small, local sample.
Ada et al. (2026), primary-care workers in Rivers State	Health Information Management and mentorship were jointly associated with healthcare-delivery ratings in a correlational survey.	Test integrated mentoring and information-strengthening models without inferring causality.

Why Mentorship Can Be a Catalyst

Mentorship is more than informal advice. Effective mentorship establishes developmental goals, clarifies roles, provides psychologically safe feedback, creates opportunities for practice, and links individual learning with institutional priorities. A systematic review of mentorship in African health-research institutions identified multiple programme models and reported benefits involving skills, confidence, collaboration, publications, and grant success, while also noting limited funding, weak mentorship cultures, and continued dependence on externally driven programmes (Ng'oda et al., 2024). A broader review of mentorship for health personnel in low- and middle-income countries found a small evidence base but generally positive effects on aspects of care quality, while stressing that intervention intensity, mentor preparation, and context matter (Schwerdtle et al., 2017). In Rivers State, a correlational survey of 400 primary-healthcare workers found that Health Information Management and mentorship were jointly associated with healthcare-delivery ratings; because the design was cross-sectional and self-reported, the result supports integration as a testable proposition rather than a causal conclusion (Ada et al., 2026).

For AI-ready Health Information Management, mentorship has four particular advantages. First, it makes abstract knowledge concrete. Concepts such as algorithmic bias or model drift become meaningful when a mentee

examines a local dataset, data-flow map, coding process, or decision-support output. Second, it supports ethical judgement. Many AI decisions involve competing values rather than simple technical rules, requiring discussion about proportionality, patient rights, uncertainty, accountability, and fairness. Third, mentorship develops implementation capability by exposing mentees to stakeholder negotiation, workflow redesign, vendor claims, procurement questions, and change management. Fourth, it creates professional networks that can reduce isolation and allow lessons to move between facilities, educational institutions, professional associations, and government.

Evidence from five sub-Saharan African health-system partnerships suggests that mentorship and coaching are most useful when integrated into wider system-strengthening strategies rather than delivered as isolated educational events (Manzi et al., 2017). Recent analysis of African clinical and research mentorship similarly calls for structured, sustainable programmes, stronger local leadership, and creative use of digital platforms (Nwalieji et al., 2025). Accordingly, mentorship should not be presented as a low-cost substitute for staffing, connectivity, interoperable systems, protected learning time, or formal education. It is a relational infrastructure that helps people use those investments responsibly and adapt them to context.

Competencies for AI-Ready Health Information Management

Data and AI Literacy

AI literacy for Health Information Management does not require every professional to become a machine-learning engineer. It requires sufficient understanding to ask informed questions and recognise limitations. Core knowledge includes how training, validation, and test data differ; how supervised and unsupervised learning are used; why performance depends on context; and how sensitivity, specificity, calibration, and predictive values affect decisions. Professionals also need to recognise automation bias, data leakage, overfitting, model drift, and the difference between correlation and clinically meaningful evidence.

Reviews of digital-health competency frameworks identify basic information-technology literacy, Health Information Management, digital communication, privacy, and ethical or legal requirements as recurrent domains, but many existing frameworks were developed in high-income settings or for specific clinical groups (Nazeha et al., 2020). Expert work on AI education likewise emphasises ethics, data suitability, basic machine-learning concepts, human-machine interaction, and governance (Gray et al., 2022). Nigerian mentorship programmes should translate these domains into locally meaningful tasks, vocabulary, and examples rather than importing curricula unchanged.

Educational capacity is part of this translation. The moderate level of technology adoption reported among Health Information Management lecturers in Ondo State indicates that educator development should accompany curriculum change (Olaleye et al., 2024). Faculty mentoring, peer demonstration, and coached use of accessible digital tools can help ensure that graduates encounter AI readiness as a practical professional capability rather than an isolated theoretical topic.

Data Quality, Standards, and Interoperability

AI systems depend on consistent definitions, complete capture, accurate coding, reliable linkage, and appropriate metadata. Mentorship should connect data-quality principles to the full information lifecycle: collection, validation, storage, exchange, reuse, retention, and disposal. Mentees should practise profiling datasets, tracing discrepancies to their sources, documenting data provenance, and assessing whether variables are sufficiently representative for a proposed use. Interoperability is equally important. Health Information Management professionals need working knowledge of terminologies, classifications, identifiers, exchange standards, and governance arrangements that permit information to move safely between systems. International competency work, including the TIGER framework, recognises Health Information Management as a distinct role within the broader informatics workforce and links informatics competence to the quality and safety of care (Hübner et al., 2019). A Nigerian programme should therefore combine technical standards with the institutional realities of fragmented systems, paper-digital hybrids, uneven connectivity, and multiple reporting obligations.

Privacy, Cybersecurity, and Lawful Data Use

Health data are sensitive, and AI may intensify privacy risks through large-scale aggregation, secondary use, linkage, re-identification, and dependence on external vendors. The Nigeria Data Protection Act establishes duties

relating to lawful and fair processing, data-subject rights, accountability, and protection of personal data (Nigeria Data Protection Commission, 2023). Mentorship should help professionals convert these obligations into operational controls, including data minimisation, role-based access, retention schedules, privacy impact assessment, incident escalation, contractual safeguards, and documentation of lawful purposes.

Cybersecurity must be treated as a patient-safety and service-continuity issue rather than solely an information-technology responsibility. Mentees should learn to identify phishing, insecure data transfers, weak authentication, excessive privileges, unsafe removable media, poorly governed cloud services, and vulnerabilities created by connected devices. Scenario-based mentoring can develop judgement about when to stop a process, whom to notify, what evidence to preserve, and how to balance rapid service delivery with protection of patients and institutions.

Ethics, Bias, and Local Validity

The World Health Organization's guidance on AI for health places human autonomy, well-being, transparency, responsibility, inclusiveness, equity, and sustainability at the centre of governance (World Health Organization, 2021). These principles have practical consequences for Health Information Management. A system may perform well overall yet disadvantage populations underrepresented in training data. Documentation practices may encode social and institutional biases. Proxy variables can reproduce discrimination. Proprietary systems may limit meaningful explanation or independent audit.

Mentorship can create structured ethical reflection around real or simulated cases. Mentees should ask who is represented in a dataset, who is missing, how labels were generated, whether performance is stable across sex, age, geography, disability, language, socioeconomic position, and care setting, and who bears the consequences of error. They should also examine whether a proposed AI use addresses a priority problem or diverts scarce resources toward a fashionable technology. Local validation, community engagement, clear escalation routes, and human review are essential safeguards, not obstacles to innovation.

Implementation Leadership and Change Management

AI adoption changes workflows, responsibilities, communication, and perceptions of professional identity. Health Information Management professionals need skills in stakeholder analysis, process mapping, requirements specification, procurement appraisal, training design, facilitation, and evaluation. They must be able to communicate across professional boundaries and challenge unrealistic claims without blocking useful innovation. The role is partly technical and partly diplomatic.

Digital technologies can support health-workforce development in low- and middle-income countries, including workers in remote settings, but effectiveness depends on design, access, motivation, and integration with systems of supervision and support (Long et al., 2018). Hybrid mentorship can combine face-to-face workplace observation with virtual case conferences, shared resources, peer groups, and access to specialist mentors. This model may extend scarce expertise, but it requires reliable communication channels, clear confidentiality rules, and institutional recognition of mentoring time.

Awareness alone should not be used as a readiness measure. A small 2026 survey of 17 Health Information Management professionals across six primary-care facilities in Ilorin South reported high awareness of mHealth interventions, yet emphasised the institutional, infrastructural, and training conditions needed to translate awareness into sustained practice (Ibraheem, 2026). Although the sample is too limited for broad generalisation, the study illustrates why mentorship evaluation should assess observed competence and implementation outcomes rather than familiarity with technology.

Evaluation and Continuous Learning

AI readiness is not a one-time certificate. Systems, regulations, and risks evolve. Mentorship programmes should therefore build habits of continuous learning and measurement. Evaluation should distinguish participation from competence and competence from service impact. Useful indicators include completion of supervised projects, improvement in data-quality scores, appropriate identification of ethical risks, adherence to privacy controls, quality of documentation, user confidence, incident reporting, successful local validation, and improvements in decision timeliness or workflow performance.

The emphasis on measurable workplace change is supported by African data-quality experience. Programmes that paired assessment with mentoring, supportive supervision, electronic-record strengthening, and performance review were perceived as more useful than disconnected interventions (Gimbel et al., 2017). Evaluation should also monitor unintended outcomes, including excessive workload, inequitable access to mentoring, dependency on a small number of experts, or pressure to deploy AI before adequate governance is in place.

The Proposed MENTOR-AI Framework

This review proposes MENTOR-AI as a conceptual framework for structuring mentorship around six linked functions. It is intended for adaptation and empirical testing rather than presentation as a validated instrument.

Table 2. MENTOR-AI competency, mentoring activities, and outcome indicators

Function	Mentorship activity	Example indicators
Map roles and readiness	Assess baseline competence, work processes, infrastructure, and priority service problems. Agree individual and institutional learning goals.	Competency profile; documented workflow; prioritised use case; development plan
Embed ethics and governance	Apply Nigerian data-protection requirements and WHO principles to cases, procurement, and project decisions.	Completed impact assessment; governance checklist; escalation pathway; consent or lawful-basis documentation
Nurture applied data and AI literacy	Use local, de-identified examples to practise data profiling, interpretation of model performance, and communication of uncertainty.	Data-quality improvement; correct interpretation exercises; reflective learning record
Test safely in context	Pilot bounded use cases in supervised sandboxes before operational deployment. Validate performance across relevant groups and settings.	Local validation report; subgroup analysis; human-oversight protocol; go/no-go decision
Observe outcomes and risks	Monitor data drift, errors, workflow effects, equity, security, and user experience after implementation.	Audit dashboard; incident log; periodic model review; service and equity measures
Reinforce communities and careers	Build peer mentoring, communities of practice, mentor development, recognition, and succession planning.	Mentor-mentee retention; peer sessions; completed projects; progression and leadership indicators

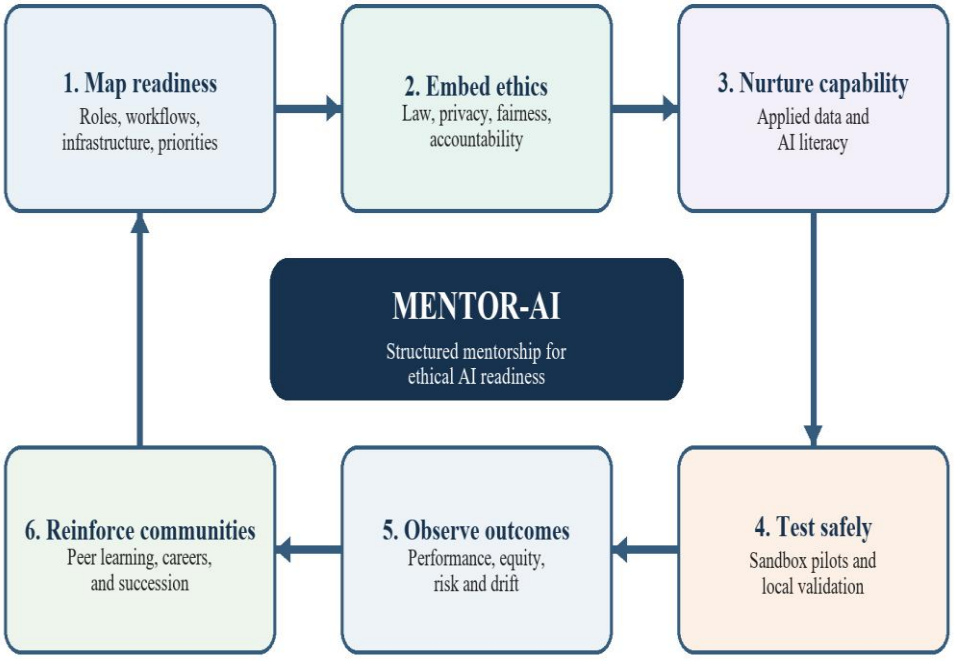

Figure 1. MENTOR-AI cycle for ethical workforce readiness

The framework deliberately starts with service needs and workforce roles rather than with a product. This reduces the risk that mentoring becomes technology promotion. It also treats ethics as an organising element across the lifecycle instead of a final compliance check. Each mentorship relationship should produce evidence of learning and a bounded contribution to institutional improvement, while recognising that not every facility will be ready for AI deployment. Figure 1 depicts MENTOR-AI as a continuous learning cycle: readiness mapping leads to ethical governance, applied capability, safe testing, outcome monitoring, and reinforcement of professional communities. Monitoring then informs the next readiness assessment, allowing competence and safeguards to evolve with technology and service needs.

Implementation in Nigerian Institutions

A feasible national approach could use a hub-and-network model. Universities, teaching hospitals, professional associations, government agencies, and established digital-health programmes could serve as mentoring hubs. State and facility networks could nominate mentors from Health Information Management, clinical informatics, public health, ethics, law, cybersecurity, statistics, and implementation science. Multidisciplinary mentor teams would reduce dependence on a single expert and model the collaboration required for safe AI.

Mentors should be selected for both subject competence and the ability to facilitate learning. A train-the-mentor curriculum should cover goal setting, adult learning, feedback, psychological safety, conflict management, equity, and referral when a problem exceeds the mentor's expertise. Mentoring agreements should specify purpose, expected contact, confidentiality, authorship and intellectual-property expectations, data-access rules, conflicts of interest, and procedures for ending or changing the relationship. Institutions should allocate protected time and recognise mentoring in workload and promotion systems.

Participation should be equitable. Early-career professionals, women, workers outside major urban centres, and staff in under-resourced facilities may face greater barriers to high-quality mentorship. Virtual access can help, but remote programmes should not assume reliable devices, connectivity, or uninterrupted time. Low-bandwidth resources, asynchronous discussion, regional peer groups, and periodic in-person sessions may be more inclusive than a fully synchronous model. Mentorship materials should use Nigerian cases and address the realities of public, private, primary, secondary, and tertiary care.

The first projects should be modest and high value. Examples include improving completeness of a priority dataset; establishing a data dictionary; mapping an information flow; assessing privacy risks in an AI-assisted coding tool; comparing model performance across population groups; strengthening access controls; developing a human-oversight protocol; or evaluating whether an automated dashboard improves decision timeliness. These projects build transferable competence without requiring immediate deployment of high-risk clinical AI.

Ethical and Organisational Safeguards

Mentorship does not remove institutional accountability. Health facilities remain responsible for lawful data processing, patient safety, procurement, security, workforce support, and quality assurance. Mentors should not be used as informal signatories for systems they cannot inspect or control. Similarly, mentees should not be expected to resolve structural deficits through personal effort. Potential conflicts require attention. Mentors affiliated with technology vendors may bring valuable knowledge but also commercial incentives. Programmes should disclose affiliations, separate education from marketing, and require independent review of high-risk claims. Patient or community representatives should be involved when systems affect access, prioritisation, consent, or culturally sensitive data. Data used for mentoring should be de-identified where possible and accessed only under approved institutional arrangements.

Another safeguard is epistemic humility: recognising what is not known. AI performance reported elsewhere may not transfer to Nigerian facilities. Small or incomplete datasets may produce unstable estimates. Lack of documentation may prevent meaningful audit. In these circumstances, the ethical decision may be to improve information foundations, gather better evidence, or decline deployment. A future-ready workforce is defined not only by the ability to use AI, but also by the confidence to question, pause, or reject unsafe use.

Research and Policy Agenda

The central evidence gap is the absence of evaluated mentorship models focused specifically on AI-ready Health Information Management in Nigeria. Pilot studies should compare different configurations, such as one-to-one, peer, group, multidisciplinary, virtual, and blended mentorship. Outcomes should include competence, confidence, data quality, ethical decision-making, retention, implementation fidelity, service performance, and equity. Mixed-method designs can explain not only whether a programme works, but for whom, under what conditions, and why.

Competency assessment tools require local development and validation. Existing frameworks offer valuable domains but may not reflect Nigerian professional scopes, legislation, infrastructure, language, or care pathways. Co-design with Health Information Management professionals, patients, educators, regulators, clinicians, and technology specialists can improve relevance. Longitudinal research should examine whether skills persist, mentors remain engaged, communities of practice become self-sustaining, and institutional policies change.

Policy should connect mentorship to broader workforce and digital-health strategies. Recommended actions include national competency expectations for AI-related Health Information Management practice; continuing professional-development pathways; accredited mentor preparation; protected mentoring time; regional centres of excellence; and minimum governance requirements for AI pilots. Procurement policies should require access to performance documentation, local validation, data-protection assurances, human-oversight plans, and mechanisms for monitoring after deployment. Funding should cover evaluation and governance, not only software acquisition.

Conclusion

Nigeria's movement toward AI-enabled healthcare will depend on the quality of its data, the strength of its governance, and the capability of the people responsible for health information. Health Information Management professionals can become critical translators between clinical needs, data systems, algorithms, law, and public trust. However, this role requires competencies that extend beyond traditional records practice and cannot be developed through one-off training alone.

Structured mentorship offers a practical catalyst because it links knowledge to supervised action, ethical reflection, professional networks, and measurable workplace improvement. The proposed MENTOR-AI framework organises this work around readiness mapping, ethics and governance, applied literacy, safe testing, continuous observation, and sustainable professional communities. Its value must now be tested rather than assumed. Mentorship will be most effective when locally led, inclusive, supported by institutions, and combined with investment in infrastructure, formal education, interoperable systems, and accountable governance.

Recommendations

- Nigerian professional bodies and educational institutions should define role-specific AI competencies for Health Information Management and align continuing professional development with those competencies.
- Health facilities should introduce structured, multidisciplinary mentorship linked to bounded data-quality, governance, or AI-readiness projects.
- Mentorship curricula should integrate the Nigeria Data Protection Act, cybersecurity, algorithmic bias, local validation, patient rights, and human oversight.
- Government and institutional funders should support mentor preparation, protected time, low-bandwidth participation, and evaluation, especially outside major urban centres.
- AI procurement and pilot programmes should require Health Information Management participation from problem definition through post-deployment monitoring.
- Researchers should evaluate the MENTOR-AI framework using mixed methods and report workforce, service, ethical, and equity outcomes.

Scientific Ethics Declaration

* The author declares that the scientific ethical and legal responsibility of this article published in EPHELS journal belongs to the author.

* This review analysed publicly available literature and policy documents and involved no human participants, identifiable personal data, animals, or biological specimens. Ethics committee approval was therefore not required. The author accepts scientific, ethical, and legal responsibility for the manuscript.

Conflict of Interest

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