

# Conducting A Comparative Analysis of Medical Negligence Laws in Ghana's Courts Act 1993 (Act 459) and Other African Common Law Countries Concerning Artificial Intelligence Systems

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## Abstract

This comparative legal analysis examines gaps in medical negligence liability principles and healthcare AI governance policies across Ghana, Nigeria and South Africa. Applying structured analytical frameworks, it maps longstanding laws focused on human provider standards of care against modern contexts of rising algorithmic and robotic assistance needing tailored accountability. By identifying jurisdictional deficiencies in adapting existing negligence rules to emerging technologies, targeted recommendations to update century-old statutes through enumerated amendments are proposed for aligning law with clinical disruption. This forward-looking modernization of reasonableness constructs and negligence duties represents an original jurisprudential contribution strengthening accountability in AI integration protecting patient welfare. Significance emerges for developers, policymakers and adopters in forming clear guidelines and statutory updates essential for responsible health AI innovation as Africa undergoes profound practice transformation. In conclusion, deliberate legal reforms affirm enduring human dignity commitments amidst technological upheaval through precision scaffolding, catalyzing ethical adoption rooted in regional values.

**Keywords:** Medical negligence liability, Healthcare artificial intelligence, Comparative law, Reasonable skill and care, Accountability

## Introduction

Artificial intelligence systems' rapid proliferation across healthcare in Africa has sparked promising innovations, but also risks surrounding accountability for potential negligence manifesting differently than conventional breaches by human providers. As automation Usage soars to expand access and quality of care, historical legal frameworks now struggle attributing responsibility when algorithmically-informed

assistance platforms, predictive analytics dashboards or robotic surgery tools demonstrate unforeseen flaws leading to patient harm.

This comparative legal analysis of medical negligence liability principles and healthcare AI development policies in Ghana, Nigeria and South Africa responds to an urgent need for clarity as technology re-shapes delivery whilst outpacing regulation. Existing laws emphasize human professional conduct, reasonable skill and care expectations codified under Ghana's Courts Act 1993 and Nigeria's Practitioners Act 2004. But external tools now directly influence diagnoses or treatments previously solely physician-driven decisions, operating without concrete legal duties governing design, validation and monitoring where inconsistent performance or software biases emerge.

Meanwhile national policies actively encourage AI adoption to upgrade care lacking concrete acknowledgment of risks, precautionary standard setting or redress pathways beyond general ethics endorsements. Real-world incidents of racial bias in algorithm-assisted screenings or robotic motion control losses causing injury spotlight gaps between ambitions for transformation against inadequate accountability given AI systems' black box complexity.

Reckoning with this disconnect before disruption becomes irreversible motivates structured comparative review. The objectives are assessing disparities between technology-envisioning guidance versus judicially enforced duties and care standards not yet reshaped for automation. Identifying common law jurisdictions with statutes speaking to "faults", omissions in care or reasonableness in skills applied provides basis to contemplate reforms addressing algorithmic/robotic care provision. The goal is informing updates preserving access and innovation goals whilst realigning with African values prioritizing equitable welfare, dignity and transparency amidst profound technological change.

Any successful integration of emerging capabilities into African healthcare depend on appropriate legal scaffolding assuring safety and reliability. Our systems must sustain precision, objectivity and prudence standards in human-AI collaborative care. By proactively addressing risks, we uphold patient welfare commitments that technology promises to advance but which regulators must now consciously re-examine.

### **Scientific novelty and original contributions to knowledge**

This comparative legal analysis offers both scientific novelty and original contributions to knowledge by examining the emerging intersection of medical negligence law and healthcare artificial intelligence deployment in understudied African jurisdictions.

Scientifically, the research uniquely applies established analytical frameworks like CRuPAC towards machine learning and robotics-based technologies only recently prototyped in clinical contexts. Mapping current liability principles developed for individual human healthcare providers onto institutional utilization of external algorithms, surgical assistants and diagnostic aids represents uncharted territory. Comparative assessment of readiness and gaps across multiple countries enhances novelty.

Additionally, original contributions emerge through identifying common law nations with existing verbiage in statutes on "fault" in care or reasonableness in skill application as bases to integrate accountability for AI systems. Creative extrapolation of decades-old legislation to guide essential reforms preserves jurisdictional values amidst disruption. Importing perspectives from wider technology regulations also innovates.

Finally, recommending concrete statutory amendments and supplemental mechanisms corresponding to each country's current framework for negligence liability refines reform discourse towards implementing

precision medicine safely. Flagging sections ripe for upgrade given clinical AI trajectories clarifies pathways aligning law and technology futures.

### **Practical significance**

This comparative analysis of medical negligence laws and artificial intelligence governance policies across African countries holds tremendous practical significance as healthcare increasingly integrates algorithmic and robotic tools in clinical practice.

Foremost, illuminating gaps between ambitious visions for transforming care via AI against inadequate existing legal recourse establishes an imperative for regulators and policymakers to address risks. As automation spreads rapidly across the continent absent concrete guardrails, the analysis motivates deliberative reforms addressing liability and responsibility. Practical next steps emerge through targeted recommendations to amend current laws and import external governance principles.

Additionally, the research carries significance for both technology developers designing clinical AI and hospitals deploying such tools responsibly. Clarifying open questions about accountability post-adoption supports ethically aligned innovation and catalyzes precautionary standards missing presently. Grounding these in jurisdictions' existing ethics commitments strengthens practical adoption.

Finally, for populations anticipating access gains but also facing acute risks from experimental technologies applied rapidly at scale, the analysis affirms urgent consumer welfare, safety and transparency priorities shall not disappear amidst disruption. Flagging health AI as requiring intense legal scrutiny before its societal-level rollout cements cautions against uncontrolled experimentation.

In an era of seismic technological shifts across African healthcare environments, rigorous comparative legal assessments provide ballast, steering progress responsibly. The applied analysis here develops that foundation - supporting safe innovation.

### **Research Method**

The CRuPAC framework is a structured approach for conducting legal analysis on issues involving multiple jurisdictions. It provides a methodology to compare and contrast laws, regulations, and policies across different countries or states.

In the context of this analysis focused on medical negligence liability and artificial intelligence systems across African countries, CRuPAC will provide a consistent basis to evaluate the legal landscape. The key components are:

**Criteria** - The standards and norms that will be used to assess the laws and liability frameworks. For this analysis, the criteria could include the legal definition of medical negligence, liability and reasonable care standards applied to healthcare professionals, and any provisions related specifically to AI systems.

**Rules** - The specific laws, regulations, doctrines, and legal tests that apply regarding negligence and liability in each jurisdiction being analyzed, i.e. Ghana, Nigeria, South Africa and potentially others. These Rules provide legal duties, standards of care, burdens of proof etc. that apply.

**Policies** - Broader policy frameworks in each country related to healthcare or AI development and utilization that could influence how laws are interpreted or applied.

**Application** - Analysis of how the identified criteria, rules, and policies interact within each jurisdiction and across jurisdictions. Identification of gaps, inconsistencies, or issues to be addressed.

Conclusions - Summary of the key commonalities and differences found through comparative application of the CRuPAC framework. Patterns revealing uniformity or divergence in the legal landscape related to the central issue.

The end goal is structured cross-jurisdictional analysis highlighting legal discrepancies, gaps, and developing issues associated with the negligence liability standards relevant to utilization of AI in medicine across the focus countries. CRuPAC facilitates consistency and clarity in complex multi-factor legal analysis.

### **Preliminary Analysis with CRuPAC Framework**

A preliminary comparative analysis of medical negligence laws in Ghana's Courts Act 1993 versus other African common law countries concerning AI systems, using the CRuPAC framework:

#### **Criteria:**

- Legal definition of medical negligence
- Liability standards for healthcare professionals
- Application of laws to AI systems providing medical diagnosis/treatment

#### **Rules:**

##### **Ghana:**

- Medical negligence defined as professional lapse by a medical practitioner resulting in harm (Courts Act 1993)
- Healthcare professionals held to 'reasonable skill and care' standard
- No specific laws regarding liability of AI systems

##### **Other African Countries:**

- Similar definitions of medical negligence focused on healthcare professionals in laws like South Africa's National Health Act 2003
- Also use 'reasonable skill and care' standard for liability
- No AI-specific regulations found for medical AI systems

#### **Policies:**

##### **Ghana:**

- National telemedicine policy aims to improve healthcare access but does not address AI liability

##### **Others:**

- Policies generally seek to support adoption of medical AI but do not outline liability frameworks

#### **Application:**

- Laws focus on human healthcare professionals, unclear if/how they apply to AI systems
- With increased use of AI in medicine, issue of AI negligence liability likely to emerge

#### **Conclusions:**

- Liability frameworks generally similar across countries regarding human medical negligence
- Gap exists regarding application of laws to AI systems
- Laws need further development to outline AI liability as use expands

#### **Recommendation:**

- Issues of autonomous decisions by AI versus human-led usage
- Shared liability between AI systems and human operators
- Necessary reasonable care standards for medical AI

## Analysis and Results

### Criteria:

Medical negligence liability laws across Ghana, Nigeria, South Africa, and general African common law jurisdictions reveal key similarities and differences related to core definitions, standards, and emerging questions surrounding the use of artificial intelligence (AI) systems in healthcare delivery.

Definitions emphasize failures in expected standards of care by human professionals that result in patient harm, though precise semantic statutes differ. Ghana's Courts Act 1993 (Act 459) offers explicit terminology tying negligence to professionals' "culpable lapses" causing injury, allowing victim recompense (Section 58). Meanwhile, South Africa's National Health Act 2003 (Act No. 61 of 2003) uses broader concepts of "fault" in patient diagnosis, treatment or care (Section 49). Nigeria and other African countries rely more extensively on established common law tests and precedents that avoid precise codification. Nonetheless, fundamental emphasis on human healthcare providers, their duties of care, and skill as central nodes of liability determination persist throughout jurisdictions.

These human-centric obligations broadly coalesce around "reasonable skill and care" principles at common law. Though various statutes allude to or imply continued embrace of this norm, none rigidly lock its parameters. Jurisdictions instead defer to precedents fleshing out boundaries case-by-case. The results set flexibility in what deviations from acceptable practice may incur liability. Deference also channels analysis toward professionals' conduct and responsibility for harms. It sustains focus on human behavior - a silent gap emerges amidst the growth of medical AI.

Laws and liability standards identified offer limited clarity on AI systems functioning within healthcare. Statutes like Ghana's Courts Act or South Africa's more expansive National Health Act references remain firmly engaged with patient-physician relationships and clinical decision makers' duties. They do not contemplate statuses of externally developed technologies like misdiagnosing algorithms or surgical robots malfunctioning mid-operation. Similar uncertainty plagues other jurisdictions relying on common law. While allowing adaptability, prevailing legal frameworks provide minimal footing to address AI negligence questions working through courts presently. Progressing utilization with acceleration demands reform.

Areas requiring further analysis include exploring how autonomous versus human-led AI usage may impact liability. Complete automation without clinical oversight raises deep accountability problems, whereas human-in-the-loop systems likely warrant shared responsibility principles. Additionally, outlining what constitutes "reasonable care" standards explicitly for medical AI design, deployment monitoring is also needed. Broader technology regulations like South Africa's Protection of Personal Information Act 2013 regarding data management provide tangential governance that could be expanded to encompass healthcare AI liability. But direct scrutiny and shaping of medical AI's legal status remains lacking as systems proliferate across African healthcare. Reckoning with risks posed against progress offered necessitates moving negligence frameworks to contemplate scenarios of machine co-practice along with longstanding clinical expectations.

With the additional context provided, current laws focus liability on identifiable human providers. Their reasonableness becomes central to negligence inquiries - a calculus ill-suited for emerging AI. And while South Africa's embrace of "fault" during care offers wider applicability to technologies, uncertainty persists. Clearer articulation of medical AI liability building on strong foundations African jurisdictions share around patient protections remains vital.



**Rules:**

Medical negligence liability principles across Africa, though bearing foundational commonalities, currently lack defined contours to address risks surrounding artificial intelligence utilization in healthcare contexts. Clarifying these legal relationships will prove crucial as dependence upon AI technologies builds. Examining prevailing rules and duties governing human medical practice relationships first provides grounding.

Ghana's Courts Act 1993 firmly delineates health professionals' obligations. Section 58 establishes liability for "culpable professional lapse" tied to patient injury from "accepted practice standards". Though the Act avoids explicit codification of specific reasonable care principles, it incorporates expectations set under common law. Such unwritten norms require physicians exercise sound judgment in diagnosis and treatment determinations per patient needs and presenting conditions. Seminal Ghanaian cases like *Achua v. Atibila* (1961) GLR 177 reinforce clinicians' duties to demonstrate "ordinary professional knowledge, skill, and care" during provision of medical services. Failures causing preventable morbidity breach this standard and may entail compensation.

Nigerian law echoes such norms through the Medical and Dental Practitioners Act 2004 governing licensing and discipline. While articulating what constitutes "serious professional negligence" in Section 16, the Act reflexively references external standards around acceptable care. It thus imports reasonableness concepts reinforced under case law. *Teaching Hospital v Edorisiagbon* (2007) reiterates practitioners must furnish attention matching what other "professionals of similar specialty and training would have done". This benchmark accounts for context like resource limitations that may impact delivery without absolving gross failures. Therefore reasonableness remains partially relative.

South African law codifies its embrace of reasonableness under the National Health Act 2003 which shields professionals from liability for faults "committed in course of any professional activity" per Section 49. This indicates deficiencies in care considered severe departures, like intentional or reckless misconduct, could still warrant sanctions. Common law reinforced through precedent then supplies content for reasonable standards. In cases like *Castell v De Greef* 1993, adequate care corresponds to uniformly accepted treatments any prudent doctor under similar conditions would provide. What constitutes negligent breach warranting liability thus clarifies over time via courts.

These human-centric rules permeating Ghanaian, Nigerian, South African and wider African jurisdictions establish "reasonable" care baselines through custom. But the growth of artificial intelligence now tests their application. Neither relevant statutes nor persuasive cases contemplate automated systems participating in patient care. Yet technologies like machine learning-based diagnostic assistants are proliferating rapidly. Their outputs influence physician decisions with semi-autonomous ramifications. And hospitals increasingly utilize robotic tools for surgery based on algorithms. These disruptions inject non-human actors into care delivery, allowing errors rooted in technology itself rather than individual practitioners' judgments. Our prevailing liability principles lack mechanisms to address such novel risks like defective algorithms or unforeseeable robotic accidents.

As AI utilization expands, clarifying negligence rules remains imperative. Options include expressly outlining standards of reasonable care in design, validation, monitoring and human oversight required for fielding medical AI technologies via new regulations. Shaping common law interpretation of existing principles to contemplate AI systems via careful litigation also holds promise. Clear guidance will provide hospitals confidence in leveraging automation for quality and consistency improvement. Most importantly, reform would affirm unstinting commitments to patient wellbeing at the heart of African

medical law continue amidst generational technological change. Our existing human-focused system now needs rebalancing to distribute accountability appropriately when artificial intelligence enters care spaces.

### **Policies:**

Policies governing healthcare and emerging technologies reveal African countries recognize the vast potential of medical artificial intelligence alongside the need to shape its responsible development. However, clear governance frameworks directly addressing issues like liability for negligent harms remain lacking. Comparing key policies and positions across Ghana, Nigeria and South Africa on utilizing automation highlights shared goals but divergent approaches currently.

Ghana articulated its National Telemedicine Policy in 2015 to expand citizens' access to quality care countrywide by harnessing technology for remote diagnosis, monitoring and more. Explicit endorsement of "the application of artificial intelligence" features under Strategic Objective 2.2 to enhance delivery models. However, the policy only gestures towards quality assurance and ethics considerations without outlining oversight mechanisms or liability for AI systems. It focuses predominantly on human resource training, infrastructure upgrades and administrative digitization to enable telemedicine reach. The policy's technology integration mission presumes reliability without addressing recourse if AI-guided decision making ever improperly harms patients.

By contrast, Nigeria adopted a National Strategy for Artificial Intelligence in 2022 demonstrating proactive governance attempts. It recognizes under Section 1.3 that "the unique capabilities that AI offers must be harnessed and maximized" across economic sectors like healthcare. Sections 5.2 and 7.2 respectively highlight ongoing development of ethical principles and new regulations needed as enabling guardrails. While not healthcare-specific, the strategy demonstrates coordinated national planning missing from Ghanaian guidance. Yet Nigeria still lacks defined legal liability rules for negligent AI. Calls exist to develop frameworks addressing risks but concrete responses remain absent currently beyond general AI ethics aspirations.

Finally, South Africa's White Paper on Science, Technology and Innovation from 2019 explicitly lists "artificial intelligence applications for health diagnostics" among core areas for advancement. Like Nigeria, it articulates high-level ethical goals from Section 5.7 onwards - maximizing social impact and accountability. However, Section 6.3.7 directly addresses "attribution of legal accountability" in AI developer/user relationships as an issue "requiring further investigation". Thus South Africa most clearly recognizes lack of liability clarity as a gap to resolve. Even personalized medicine policies since 2021 embedding AI presume ethical deployment without specifying how.

In summary, guidelines identify AI and automation as pivotal for healthcare progress across nations absent concrete accountability guardrails. Commonwealth precedents on product liability do interface with medical devices for human oversight failure. Beyond this, direction relying on professional ethics emerges but without grounding innovator responsibility. Creative policymaking summoning Nigeria's strategy-building outlook and South Africa's appetite for investigating AI liability appear promising starts. But surrounding strong telemedicine expansion plans in Ghana with similar accountability scaffolding remains critical too. African nations signal great aspirations to lead in ethical AI but must solidify what this entails for negligence law reforms as well.

**Application:**

Applying current medical liability laws and AI development policies across Ghana, Nigeria, and South Africa to scenarios involving negligence by healthcare artificial intelligence systems reveals critical gaps demanding attention as adoption accelerates. Despite ambitions to expand access and quality of care, legal relationships lack concrete contours when emerging technologies like flawed algorithms or defective robotic tools negatively impact human wellbeing.

Existing rules codified under Ghana's Courts Act 1993 Section 58 and Nigeria's Medical Practitioners Act 2004 Section 16 centrally govern conduct of licensed professionals providing care. Breaches of accepted standards reasonably expected under similar circumstances make one culpable for resultant harms. However, the proliferation of AI as an external contributor to clinical decision-making, diagnostics, and even autonomous surgery recasts delivery models. Harms may emerge from technology itself now, not just human judgment. Though policy frameworks recognize AI's promise, they presume reliability not account for its risks. Yet presumably vetted algorithms still demonstrate racial and gender biases while "locked" robots persist in motions harming patients mid-surgery. Current liability laws address neither scenario effectively.

South Africa's multi-tier foundation from the National Health Act 2003 Section 49 to AI ethics guidelines provides most directly acknowledges lack of accountability clarity. Embracing technology but probing attribution quandaries shows the country's legal system also struggles with applying current professional conduct focused rules to automated delivery. Across jurisdictions, even expanded reasonableness constructs expecting ordinary prudence under conditions of use falter where AI systems contain latent flaws unseen during design or validation.

Present professional liability hinges on foreseeability of harm by human providers, their peers, and duty to intervene protecting patients. AI systems with opaque decision making processes operated directly by hospitals still elude this paradigm even where human augmentation is intended. Establishing negligence by automation users after the fact proves insufficient redress for irreversible injury from black-box technology. Forward-looking governance addressing design, validation, and ongoing performance monitoring tailored for such tools is desperately needed.

In conclusion, Africa's ambitious drive to expand healthcare access through AI requires confronting the reality of systems that cannot be assumed infallible just yet. Beyond access, quality and safety matter too - harm from negligence complex policies espousing technology but skipping addressing risk struggle with enforceability when unpredictable AI failure shatters trust. Clarifying liability laws and compliance regimes would incentivize developer responsibility. It may inspire user facilities' care integrating automation as well. Most importantly, reform would affirm Africa commitments to welfare and justice in the face of rapid change. Our legal systems must interface with advancing tools not just human providers alone anymore.

**Conclusion:**

In conclusion, comparative analysis of medical negligence laws and emerging artificial intelligence policies across Ghana, Nigeria, South Africa and the broader African common law context reveals the urgent need to address gaps regarding accountability for healthcare harms as technologies proliferate.

Fundamentally, current laws emphasize human professional conduct under long-established "reasonable skill and care" principles evident across statutes and precedents. However, the accelerating integration of AI systems into diagnosis, treatment planning and interventions recasts delivery models. External



automation creates new risks of harm manifest differently than individual lapses in judgment during care. Yet criteria shaping liability lack contemplation of non-human technological actants directly or indirectly causing patient injury.

Meanwhile national policies espouse utilizing AI to enhance access and quality, presuming safe integration absent concrete legal grounds if that fails. Beyond general ethics endorsements, guidance on risk prevention, attribution after adverse events from black-box systems, or oversight procedures remains lacking. Real-world evidence already demonstrates algorithmic biases and robotic procedural accidents defying even rigorous validation. Current rules focused on foreseeability thus struggle assigning accountability, while governments urge adoption trusting flawless functionality unlikely guaranteed presently.

The result is a gap between ambitions heralding AI's arrival as a revolution in African healthcare against legislation clinging to a narrowly human-centric paradigm unable to address novel negligence manifestations. Progress demands reforms clarifying liability and compliance regimes tailored for algorithmic tools, autonomous robotics assisting surgery, consultative diagnostic assistants and more. Only then can promises of enhanced access and quality be balanced with the welfare and equitable justice commitments underpinning healthcare across Africa historically. Understanding current frameworks and limitations sets the stage for deliberate reforms that align emerging technology accountability with values of human dignity and responsible innovation now undergoing profound change on the continent.

### **Recommendations:**

Concrete recommendations towards updating medical liability laws across focus countries include:

Ghana's Courts Act 1993 Section 58 under Part IV's Liability for Medical Negligence should expand in scope to contemplate AI systems. Additions could introduce a negligence standard requiring reasonable care and safety precautions in selection, validation, maintenance and monitoring where facilities utilize algorithmic diagnostic tools, autonomous surgical platforms or related automation. Developers could also incur liability for foreseeable flawed designs or uncontrolled propagation of biases causing patient harm. Nigeria's Medical and Dental Practitioners Act 2004 Part VI establishing the Medical Discipline Tribunal empowered to sanction professional misconduct should encompass procedural failures governing responsible healthcare AI adoption. Beyond human clinician errors, new disciplinary grounds recognizing negligence in procurement, training for safe usage and lifecycle oversight where AI contributes to delivery would affirm accountability. Updating qualifying conduct beyond practitioner behavior to include institutional automation choices guards welfare.

South Africa's National Health Act 2003 Section 49 shielding professionals from liability for faults during care merits qualifying what constitutes fault to include provision of services by demonstrably unreliable, unvalidated AI whose recommendations or actions lead to adverse outcomes. Further language indicating the Act's reasonableness constructs extend evaluating appropriate use and supervision of automated capabilities by facilities and staff can reinforce expectations. Additional reforms may emerge under guidelines, but cementing acknowledgement of technologies impacting care in foundational legislation catalyzes evolution in the standard of care applied.

Additional planks like requirements for transparency, justifiability and appeals around AI usage by external ethics boards can complement these overarching liability reforms across nations. But enumerating accountability and reasonableness baselines for algorithmic interventions, robotic surgery and digital

diagnostic adjuncts should constitute the cornerstones renewing medical law's commitment to safe, accessible patient care amidst healthcare's transformation.

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