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Research Article

Assessing the Role Ghana's Public Health Act, 2012 (Act 851) Can Play in Oversight of Artificial Intelligence Healthcare Systems to Prevent Medical Errors and Improve Patient Safety

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ABSTRACT

Purpose: Evaluate the possibilities and limitations of implementing the Essential Ghana Public Health Act to manage the growing development of artificial intelligence (AI)-enabled health care in light of the contemporary gap in research so.
Methodology: A review of the 2012 public health regulatory provisions and anti-technology surveillance mechanisms document detailing the needs and risks of AI regulation.
Results: Current regulations have a customizable foundation for documenting policies, reporting algorithmic errors, creating updated workplace safety audits, and enforcing non-compliance but required by fully implemented investigations that strong material differences are addressed and that AI-specific rules are codified into new legal rules.
Conclusions: Ghana currently has the mechanisms in place for an interim administration to flexibly implement long-term healthcare legislation on gaps awaiting reconciliation through investment in specific sectors, staffing and reforms.
Recommendations: Immediate training to prepare inspection personnel before the onset of the crisis is guidelines and rules for algorithmic accounting. What really matters is the effective implementation of existing legislation and the informing of strategies for modernization and certainly also the innovation of policy frameworks for the innovation of new health care systems.

Scientific contribution: addresses the knowledge gap in maintaining vulnerabilities for emerging technologies that are tracked by regulations in disruption.

1. INTRODUCTION

The use of artificial intelligence (AI) systems in healthcare has grown rapidly in recent years [1-3]. In Ghanaian society, there is some promise in AI Technology, diagnosis, population analysis, etc., but on the side of the benefits, the lack of transparency, this complicated software, to do or fail to fail, and etc.[4]. Poe's concerns are growing renewal regulatory oversight is needed to ensure that this wave is effective rather than reducing patient safety standards [5][6].
Ghana's Public Health Act, 2012 (Act 851) established legislative foundations for fitness gadget fine warranty thru mechanisms consisting of mandatory licensing and inspections [7][8]. The aim is oversight of healthcare provision to worldwide patient protection norms. With advanced technologies like AI now being deployed, there are open questions

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concerning whether Act 851 wishes updating to cowl dangers arising particularly from facts-pushed algorithms as opposed to traditional clinical errors.
This study aims to assess the role of the existing Ghanaian public health regulations in AI health management and whether the system needs to be updated for the advanced software era. The objectives are:

1. To examine aspects of Act 851 that can enhance oversight of AI systems, such as licensing/registration, reporting rules, inspections, and compliance mechanisms.
2. To identify the regulatory gaps, challenges and limitations of implementing current Acts for AI security purposes based on robust machine learning tools and traditional medical devices.
3. To submit recommendations on any legislative or guideline updates required to leverage Ghana's health care system for targeted outcomes of AI initiatives such as algorithmic bias and transparency.

This study contributes to empirically based insights among the limited research on health system governance, emerging technologies and medical research infrastructure in the African context. Analysis of transitional approaches to AI and other advances under the existing regulatory framework addresses existing knowledge of practical oversight strategies that developing countries can spatially implement even with new laws lagging behind. The study highlights the promise and limitations of ground rules not explicitly formulated for the implementation of technologies that cannot be found in prior applications. But the case study also illustrates the extent to which legislative reconsideration for new occasions remains inevitable. Such research reflects a modern policy that balances the laxity of current enforcement and requires targeted reforms that actively future proof that laxity of research.

The findings provide data-driven guidance on real-world governance modern needs that jurisdictions like Ghana face amid growing research that suggests overpayment policies are still pending for many countries despite adoption of AI healthcare of process atom fast. The practical emphasis also highlights opportunities for regulatory frameworks strengthened by creative application of existing regulations in advance of potentially delayed legislative processes emphasize. But caution also comes from placing too much reliance on conscious improvements without old regs. Recommendations therefore provide actionable initiatives that policymakers and oversight bodies can develop as next steps whether to provide AI-specific performance guidelines that interpret current legislation or interagency training programs that prepare researchers ahead of crisis the coming of the.

Big data analytics promises advantages but risks for healthcare [9][10]. Section 97 of the Public Health Act of Ghana provides for technical inspection—executed reporting requirements (Section 8) and licensing reviews (Section VI). With the proper governance, big data can provide self-monitoring population-based insights that eliminate the risks of unbiased but require monitoring training due to funding gaps as big data to prevent contradictions innovations with monitoring capabilities. Needs Current legislation should be modernized with current legislation capacity for responsible innovation can create a level playing field. Figure 1 shows Google opening Africa's first AI research center in Accra, Ghana.

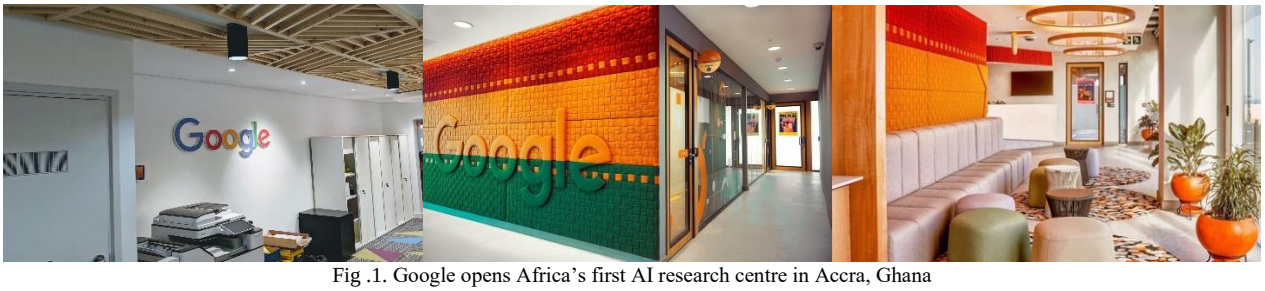

Fig .1. Google opens Africa's first AI research centre in Accra, Ghana

AI and big data have tremendous potential to transform various sectors in Ghana including health, agriculture, education, finance, governance, infrastructure, transport and environmental management Using advanced analytics and machine learning algorithms a, these technologies can improve decision-making processes, improve service delivery, improve resource efficiency allocation and foster innovation but Realizing these benefits requires addressing challenges such as data privacy problems , the digital divide, the need for skilled workers to effectively harness the power of AI and big data Collaborative efforts between the public and private sectors are essential to achieve equal access and maximize the positive impact of such these technologies have on the social and economic development of Ghana.AI and big data have tremendous potential to transform various sectors in Ghana including health, agriculture, education, finance, governance, infrastructure, transport and environmental management Using advanced analytics and machine learning algorithms a, these technologies

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2. RESEARCH METHODOLOGY

A qualitative paper research approach was used in this systematic study that examined the regulatory capacity of Ghanaian public health regulators to administer healthcare AI initiatives. It includes a critical reading of the Code's statutory provisions, an explanatory integration of care strategies described between chapters, and an explanatory review of technical literature and medical case studies research detailing contemporary issues related to AI governance [11]. The methodology affords a replicable framework immediately applicable for coverage scholars or oversight officials to likewise verify modernization gaps among existing policies and emergent era dangers throughout other specialized domains like facts privateness laws, clinical liability statutes, facility accreditations or device approval protocols whilst innovations render analogue-generation codes old. Similar strategies actively serve legislative reform strategies and era governance across the world. For instance, in Canada, researchers utilized qualitative record evaluation grounded in device gaining knowledge of duty literature to evaluate gaps in federal privateness legal guidelines designed decades earlier than huge data structures deliver currently unregulated surveillance dangers to populations. Others employing alike methodology evaluated US municipal policies on law enforcement against civil rights principles evidencing where lacking safeguards persist [12]. Within Ghana, analysts used comparable approaches to examine gaps between]}" data protection policies and e-health system's needs [13][14]. Literature further evidences the replicable method generalizable for technology law and ethics issues. Qualitative document analysis thus proffers rich potential informing oversight modernization even where technical knowledge remains nascent across regulators.

3. RESULTS AND DISCUSSIONS.

Benefits and risks of AI health systems, specific to different systems, potential benefits, flaws/harms and risks:
Artificial intelligence is increasingly being used in various aspects of the healthcare system in Ghana, with the aim of using advanced analytics to improve quality, efficiency and access to care. Popular applications include AI-enabled medical devices for diagnosis, machine learning for supporting clinical decisions, natural language for analyzing health records, robotic assistants in medical management, and patient education chatbots [15][16].

While full adoption is still nascent, Ghana's AI health market already topped $16 million in 2020 and could grow to over $34 million by 2025 if promising pilots translate into transformation [4]. Proponents highlight ample potential benefits driving investment and innovation with these cognitive technologies. Machine learning diagnosis tools like one developed by mPharma show potentials to enhance detection of diseases like tuberculosis with up to 99% accuracy during shortages of radiologists (Imperial College London, 2020). Other optimistic promises are automation of tasks like pathology screening or medication recommendations that ease clinical workloads, allowing human resources to focus on the patients most needing high-touch care. If realised, this could help address access barriers for Ghana's underserved rural populations. Nevertheless, development is accompanied by numerous security, ethical and privacy risks. Modelling complex biological systems introduces inherent uncertainty about rare diseases or diverse populations. It was later found that the widely known Google system for diagnosis of diabetic retinopathy failed to screen African patients, suggesting that the gap in data and achievements needed to consider social implications as well. Nevertheless, the most critical area to examine concentrates on direct issues such as algorithmic failures or data biases that harm patients.

Specific areas of concern are errors in AI-assisted decision-making related to diagnosis, treatment recommendations, or predictive research. In the U.S. study, an algorithm widely used to misguide healthcare utilization flagged black patients as needing 40% less additional care than their white counterpart. Similarly, it was an example of the risks of exacerbating racial health disparities if not realistic for patients providing research or health information. Cybersecurity poses the added risk of privacy breaches or ransomware attacks that could cripple AI health systems. While Ghana has yet to report AI accidents, other countries have reported deaths due to unexpected flaws in self-learning software.

Therefore, management strategies are required to balance the promotion of AI innovations for the broader healthcare system while governing to prevent potential patient harm or ethical issues. Regulations on analytics and transparency can relate to targeted topics such as searching for information in different training data sets, highlighting metrics on AI performance

differences among patient populations, or people a third-party ongoing audit of new machine learning models used in practice.

Ghana's Public Health Act, 2012 (Act 851)
Safety standards in public and private healthcare facilities across the country. Before the enactment of the Act, Ghana did not have formalized standards for assessment, reporting procedures for reporting patient harm, enforceable workplace standards, or systems for dealing with health issues concerning health quality after Act 851, which aims to address this deficiency through regulatory requirements formulated as international health assessment standards.

Key mechanisms serve functions including mandatory licensing of facilities/practitioners to ensure safe staffing ratios, surprise inspections to evaluate environments of care, channels for reporting adverse safety incidents without penalties, and enforcement capabilities when standards are violated [17]. Early assessments indicate the Act's implementation has enhanced detection of deficiencies and driven some quality improvements, though funding and capacity for full oversight remains lacking eight years later.

Registration / Licensing Requirements
Part VI of Act 851 establishes mandatory registration and annual licensing conditioned upon meeting safety standards for both facilities and individual practitioners to legally operate health services. This aims to combat Ghaha's previous lack of control around proliferation of unqualified personnel or substandard clinics. All facilities must acquire licenses demonstrating sectors like trained staff, management policies, technologies meeting norms, and building infrastructure able to support safe patient volumes/services. Act 851 further specifies allowed scopes of practice for credentialed jobs like doctors, nurses, pharmacists etc.

In one example, the licensing board sanctioned and issued a closure warning to a private GP clinic found utilizing unqualified staff in nurse roles. Legal registration/licensing facilitates oversight missed under the prior patchwork of voluntary compliance. However, capacity for rigorous inspection of all facilities poses funding/workforce challenges, risking uneven implementation. Registration further may address only surface level indicators versus deeper operational safety.

Inspections & Patient Safety Monitoring
Flagship oversight components of Act 851 are legally mandated inspections of healthcare facilities to gauge environments of care, technologies in use, and organizational safety against codified standards (Aboagye, 2022). Inspectors file reports benchmarking measures like staffing ratios, emergency equipment availability, structural condition of buildings, reporting structures and incident investigation norms. This facilitates comparison against national healthcare quality benchmarks.

In a 2022 case study, impromptu hospital inspections uncovered critical deficiencies like non-functional oxygen ports, 6-month lapses in fire extinguisher checks and lack of backup generators - issues linked to avoidable maternal deaths countrywide. Prompt correction notices were issued. Prior to Act 851, such accountability was absent. However, sufficient resources for ongoing exhaustive inspections have lagged behind the promises of legally guaranteed scrutiny. One assessment estimated full nationwide safety oversight would require quadrupling the current qualified inspectors.

Reporting Adverse Events
An important aspect of patient safety mandates reporting mechanisms and systems to document adverse health events from avoidable infections to treatment delays, procedure failures, error detection illness, or cases of substandard care The Act requires hospitals to implement simple communication channels for patients/families to register harmful incidents or complaints. Severe or fatal cases require alerting of national agencies that can further intervene to prevent a recurrence.

This reporting mechanism aims to acknowledge medical errors that were often avoided from being reported or investigated before the introduction of the Act. However, some disclosure may be limited by the fear of flawed errors. Ongoing cultural change and planning are needed so that reporting enables learning, not punishment. Furthermore, there is limited capacity to fully implement all incident surveillance with impunity, although legal grounds now exist to address this global patient safety requirement appropriately.

Enforcement Mechanisms
When establishments or physicians violate regulated quality of care or safety standards, Act 851 authorizes various disciplinary actions to enforce the change. Compliance orders may require improvement programs that are perceived to

meet required standards - for example, correcting infrastructure deficiencies, purchasing backup generators in relief, or performing an appropriately certified project with staffing conduct and facilitating the acquisition or closure of facilities that endanger the welfare of patients, accepted for non-compliant entities or unlicensed employees. The same termination applies to physicians who violate ethical rules or pose a risk to the people in their care.

Historically, Ghana had little mechanism for dealing with unscrupulous doctors. Although implementing the law still relies on introductory oversight provisions, Act 851 opened up statutory accountability mechanisms that have been stalled for too long. This urges health authorities in Ghana to make progress closer to institutional safety cultures in order to meet the formal expectations of families regarding the care of their loved one's life. Ongoing action is needed to align policy intent with grassroots impact.

Registration of AI Systems

A key opportunity for public health management bodies in Ghana to take control of emerging AI healthcare technologies is to seek registration or licensing of these software systems like approvals for conventional medical devices or technology's role under Section 97 of the PHA [4]. If suppliers, manufacturers, or healthcare facilities testing or purchasing a diagnostic/therapeutic AI system are required to submit applications describing the intended use cases, training data, algorithms, performance testing, and risk assessment will be sent to prevent the use of untested products and to facilitate validation and monitoring of risks.

Registration forms should include technical aspects that break down model features, and developing systems with machine learning that require continuous access to update monitors AI decision processes specifics exceed traditional technical codes, however necessary due to software complexity. Stringent registration requirements also prevent rapid measurements before quality control. Industries can try to implement foreign-developed AI tools with little local diligence. Thus, the patent provides a legal basis for products testing Ghanaian datasets to ensure security and prevent global problems such as racial bias or transparency issues that are common in AI.

Reporting AI Errors & Harms

The mandatory reporting system in PHA Chapter 8 also provides a mechanism for capturing crimes and cases that arise when AI systems go wrong or contribute to patient harm. Although fear of liability often prevents documentation of medical errors apparent mouth though, the law aims to encourage problems acknowledged Reformist use beyond isolated cases in preventing future recidivism through systematic learning. This principle is more applicable to emerging AI accidents that, despite having the best intentions, are likely to increase due to the expansion of field adoption.

AI diagnostic machines mislabeling symptoms, treatment recommendation systems giving terrible medical advice, algorithmic triage/bed assignments promoting inequality, or inefficient AI-guided robotic surgical machines, or the development of a nonpunitively flexible way for caregivers or families to record events would provide researchers with important insights into possible approaches to safety audits intended in terms of real-world missing data. The virtual absence of reporting mechanisms is crucial for texts focusing on a single health facility [4]. Review boards that explore patterns around AI security gaps also enable recommendations or identify new processes needed for these data-driven tools that are still new in use. Reporting processes that are mandatory to continue implementation under PHAs Facilitate governance of AI health risks.

Incorporating AI into Safety Inspections & Monitoring

PHAs in Ghana mandate regular, unannounced health care inspections to assess things like staff certification, medical equipment maintenance, record-keeping procedures, and an overall environment of care with standards listed as required for safe operation, which need to be more consistent. Although not initially conceived with emerging digital technologies at the centre, a robust governance framework with best practices integrating analysis of AI systems on-site statutorily mandated accountability and tools and customized devices such as for cameras or electronic health records are provided. Cybersecurity controls protecting against hacking/data theft, employee knowledge requirements for proper use of AI, human-in-the-loop program command, anti-bias data collection, performing software model updates regularly, confirmation and confirmation letters, quality management Monitors ready to analyze aspects such as f customized practices AI continuous improvement can check if safety measures and requirements it has a robust state-of-the-art surveillance system in place. As the standards reflect lessons learned and technological risks that will inevitably occur in the coming years, updated code implementation through a mandatory monitoring model can provide hospitals witnessing the use of AI to meet the changing legal tasks of responsible adoption. What investigators witness on-site also identifies

priorities for issuing violation warnings or disciplinary orders to laggards who risk being AI issues that can be prevented through available mechanisms and old enforcement mechanisms.

Enforcement Requirements for Non-Compliant AI Systems

When healthcare facilities employ algorithmic systems contravening safety or ethical standards codified either immediately or in coming years, PHA enforcement mechanisms allow regulators to mandate corrective actions or apply punitive measures for non-compliant operators. Compliance orders may demand risk assessments addressing identified issues in an AI system's training data, functionality or use mandates before further deployment [4]. Penalties for organizations failing to cease problematic utilization could include technology seizure to halt patient harms or litigation applying negligence liabilities coded within PHA liability clauses protecting public welfare. Suspension similarly applies to practitioners ignoring risks or oversight statutes.

International case examples demonstrate precedents applicable to Ghana for utilizing healthcare oversight powers over new technologies with unforeseen consequences. For instance, in 2022 USA regulators mandated suspension of a predictive analytics tool shown disproportionately recommending white patients for extra medical care after initially granting adoption permissions (Saria et al., 2020). Ghana's PHA enables analogous governance actions against concerning locally developed or procured AI should incidents emerge from hospital digitization. In sum, Ghana's healthcare oversight legislation contains a range of mechanisms and regulatory powers applicable to emerging AI technologies which remain underutilized. But political will and investments into multi-disciplinary inspector capacity building must accompany the country's AI ambitions.

Challenges Understanding Complex AI Systems

The main obstacle to resolving governance due to the proliferation of AI technologies in Ghana’s healthcare is the regulatory gap in technical understanding of how these modern software tools differ from traditional medical tools. Machine learning technologies are developing over time, all through additional self-training. Labelled as meaningless, there should be an easy way to check the quality of decision-making after the initial implementation.

Ghanaian oversight bodies like the Food and Drugs Authority or Ministry of Health Standards Board may manage approval and inspection for technologies like MRI scanners with defined engineering specifications. However, most staff lack data science expertise to gauge metrics like model accuracy, interpret neural network learning pathways ingested from diverse training datasets, conduct risk analysis of probable algorithmic failures, or ask penetrating questions when algorithms harm patients [4]. Legislation like the PHA now demands modernization to address autonomous software unlike preceding technologies.

Swaths of funding, partnerships and reskilling is imperative for training multidisciplinary state and hospital oversight teams adept in domains spanning software engineering, data transparency, applied ethics and safety science to match AI complexity. Standards development must further incorporate international lessons around issues like when absences in racial diversity within medical datasets enables bias against darker skin patients frequently under-diagnosed from machine learning imaging tools trained primarily on white populations.

Playing catchup reactively after adverse AI events manifest treats patients like guinea pigs during a technique still clinically experimental [4]. Prepared governance prevents problems before scale.

Resources Needed to Operationalize Effective AI Oversight

The advancement of healthcare in AI protection increases demand beyond traditional supply through robust new algorithmic tools needed to overcome sustainability constraints plaguing the availability of Ghanaian PHA's old quality control over tasks such as staff shortages for intensive nationwide assessments or underdeveloped cumulative capacity for tracking health outcomes.

One study estimated that assessing AI adoption rates would require ~80% of Ghanaian hospitals to collect data using various machine learning devices. This Herculean data collection exercise is not funded. It is not all likely to be done under status quo control, not to mention the latter review, licensing, and reporting mechanisms to cover the use of AI in workplaces. Legally mandated safety reviews, therefore, risk becoming symbolic rather than enabling personnel to align with policy objectives.

Parliament partially managed this in 2022 by allocating $6.3 million to the Ministry of Health’s Digital Transformation Secretariat, which oversees the nationwide eHealth strategy [18]. Observers’ critiques, however, suggest significant gaps in technical expertise related to data or software governance issues remain that new funding alone cannot address without

engagement with technology experts and academics. Targeted legislative changes to PHAs also offer the potential to accelerate the development of formal regimes.

Updating Legislative Standards to Address AI Systems

While Ghana's current healthcare legislation contains flexible mechanisms that address AI and other emerging software, legislative reforms are likely to provide needed appropriate security standards, and the binding capacity for accountability in widely employed algorithms is apparent. Expectations of updates on disclosure requirements, mandatory human care policies, and liability issues that damage AI can lock in unproven technologies with risks are contained only if used hastily for efficiency gains.

Current jurisdictions such as the United States, Canada, Australia, and the European Union have enacted AI-specific legal proposals or rules for algorithmic accounting, data rights and objective security requirements where traditional laws fail to cover risks from artificial intelligence things correctly. The Ghanaian legislature should follow suit by updating statutory regulations to explicitly govern AI healthcare and not rely on decades-old care regulations conceived long before devices learn, and the possibilities of big data analytics are changing it up just for a while. Currently, observed rules and prohibitions can constantly adjust to new frontiers and mitigate new adverse effects that are avoided by prudent governance.

4. CONCLUSIONS

Ghana is grappling with highly expected but unanswered governance questions in many countries as smart technologies rapidly transform healthcare services amidst the pressures of digitisation. The nation's Primary Public Health Act (PHA) contains a variety of quality assurance and safety provisions that are worth regulating if these AI innovations are adequately funded and technologically translated into a machine learning world. In particular, mandatory licensing policies for health technologies, crime reporting systems, repeated inspections against regulated standards, and enforcement programs address risks from AI a system that can be defined if the administrators in charge have sufficient interdisciplinary authority. Nevertheless, as regulations catch up globally in algorithmic loss mitigation, Ghana has explicitly updated its visionary PHA regulations to address autonomous software as opposed to the analogue regulations anticipated before the rise of AI in the mainstream, standard workers' guidance and legislative potential invest actively contradict. Improving governance in the digitisation of the healthcare ecosystem can enable Ghana to encourage local innovation by simultaneously enabling its citizens to develop and responsibly deal with adverse events a international visibility is addressed when public oversight lags behind the implementation of AI. The nation's healthcare regulatory framework has an evolving dynamic aligned with the goal of safely implementing data-driven care. But the willingness to invest in oversight and reform legislative legislation ready for the algorithmic age are still open questions that need answers if Ghana is to deliver the promise of AI equally to everyone.

5. RECOMMENDATIONS

Ghana is among many countries swallowed up by rapidly rising optimism but unanswered questions of management that are artificial intelligence technologies quickly. Under the Ghana Public Health Act, there are recommendations for managing AI health systems:

A. Increasing Health Agency Digital Health Staffing Funds

- Parliament should allocate funds in the next budget to increase the digital health care workforce, particularly in oversight bodies such as the National Health Standards Authority, the Food and Drug Administration and the Healthcare Quality Administration.
- Significant salary increases and technology funding to retain qualified technical experts in software, data and AI related initiatives.
- Prioritize hiring researchers with broad skill sets related to healthcare, applied computer science, data analytics, engineering, and clinical practice.
- Cleverly create multidisciplinary regulatory teams to allow specialist researchers to look at AI security issues.

B. Issue New PHA Guidance Addressing AI Systems

- Healthcare communities should provide technical guidance to support current public health regulations that explicitly address appropriate research governance considerations for the use of AI and advanced software in clinical settings.
- The guidelines should set new requirements for transparency, humanitarian oversight, risk management and anti-bias services - modifying best practice emerging from partner countries struggling with similar issues of increased access to health care.

- Such guidelines can explain the legal expectations and duties of the enterprise/technology manufacturing sector without explicitly regulated AI standards.

C. Legislating PHA Reforms with AI-Specific Provisions

- There is a need for the Ghanaian legislature to amend the Public Health Act to explicitly address the regulation of AI and software-based medical devices, as there are greater risks than traditional technologies regulated by a its time is up to rule.
- Lawmakers can introduce targeted reforms and new policies based on international models that adjust the application of security audits, privacy rights and restrictions to the unique governance challenges posed by semi-autonomous algorithmic systems.
- Developing legal services now can mitigate potentially preventable issues encountered in peer-to-peer societies by allowing unlimited adoption of AI without data-based adaptive tools for compliant management on.

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REFERENCES

[1] D. Lee and S. N. Yoon, "Application of Artificial Intelligence-Based Technologies in the Healthcare Industry: Opportunities and Challenges," *International Journal of Environmental Research and Public Health*, vol.18, no.1, pp.271, January 2021. https://doi.org/10.3390/ijerph18010271

[2] M. Sallam and D. Mousa, "Evaluating ChatGPT performance in Arabic dialects: A comparative study showing defects in responding to Jordanian and Tunisian general health prompts," *Mesopotamian Journal of Artificial Intelligence in Healthcare*, vol.2024, pp.1–7, January 2024. https://doi.org/10.58496/MJAIH/2024/001

[3] N. Noorbakhsh-Sabet, R. Zand, Y. Zhang, and V. Abedi, "Artificial Intelligence Transforms the Future of Health Care," The American Journal of Medicine, vol.132, no.7, pp.795-801, July 2019. https://doi.org/10.1016/j.amjmed.2019.01.017

[4] Quaye, R. (2019). Guidance on regulating software as medical device in Ghana to enable innovation while assuring safety. Think Tank Review - Ghana Center for Democratic Development CDD-Ghana.

[5] A. Addy, "AI-augmented Governance of the Ghanaian Healthcare Delivery System: Ethical and Privacy Issues in Patients Medical Records, Access and Retrieval," *International Journal Of Law Management & Humanities*, vol.6, no.5, pp.2066 - 2091, 2023. https://doij.org/10.10000/IJLMH.115984

[6] A. Addy, V. Adams, M. Acka, C. Amadzor, B. E. Amoh, and G. B. Mensah, "Analysis of the Ghanaian Public Health Act, AI Regulatory Regimes and Vaccine Manufacturing and Distribution Channels in Ghana," *International Journal For Multidisciplinary Research*, vol.6, no.1, pp.1-10, February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.12279

[7] M. Amoakoh-Coleman, I. A. Agyepong, G. A. Kayode, D. E. Grobbee, K. Klipstein-Grobusch, and E. K. Ansah, "Public health facility resource availability and provider adherence to first antenatal guidelines in a low resource setting in Accra, Ghana," *BMC Health Services Research*, vol.16, no.505, pp.1-9, September 2016. https://doi.org/10.1186/s12913-016-1747-1

[8] A. Addy, S. Asamoah-Atakorah, G. B. Mensah, S. W. Doodo, and R. Asamoah-Atakorah, "Ghana's Public Health Act, AI algorithms and Vaccine Distribution in Ghana," *International Journal for Multidisciplinary Research*, vol.6, no.1, pp.1-9, February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.12144

[9] Y. Wang, L. Kung, and T. A. Byrd, "Big data analytics: Understanding its capabilities and potential benefits for healthcare organizations," *Technological Forecasting and Social Change*, vol.126, pp.3-13, January 2018. https://doi.org/10.1016/j.techfore.2015.12.019

[10] A. Rehman, S. Naz, and I. Razzak, "Leveraging big data analytics in healthcare enhancement: trends, challenges and opportunities," *Multimedia Systems*, vol.28, pp. 1339–1371, January 2021. https://doi.org/10.1007/s00530-020-00736-8

[11] G. T. Owen, "Qualitative Methods in Higher Education Policy Analysis: Using Interviews and Document Analysis," *The Qualitative Report*, vol.19, no.26, pp.1-19, June 2014. https://doi.org/10.46743/2160-3715/2014.1211

[12] R. Richardson, J. Schultz, and K. Crawford, "Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice," *SSRN*, February 2019. Available at SSRN: https://ssrn.com/abstract=3333423

[13] G. B. Mensah, M. M. Mijwil, and M. Abotaleb, "Examining Ghana's National Health Insurance Act, 2003 (Act 650) to Improve Accessibility of Artificial Intelligence Therapies and Address Compensation Issues in Cases of Medical Negligence," *Mesopotamian Journal of Computer Science*, vol.2024, pp.28–33, March 2023. https://doi.org/10.58496/MJCSC/2024/003

[14] G. B. Mensah, "Examining Ghana's Health Professions Regulatory Bodies Act, 2013 (Act 857) To Determine Its Adequacy in Governing the Use of Artificial Intelligence in Healthcare Delivery and Medical Negligence Issues," *Mesopotamian Journal of Artificial Intelligence in Healthcare*, vol.2024, pp.20–27, January 2024. https://doi.org/10.58496/MJAIH/2024/004

[15] M. M. Mijwil, K. K. Hiran, R. Doshi, M. Dadhich, AH. Al-Mistarehi, and I. Bala, "ChatGPT and the Future of Academic Integrity in the Artificial Intelligence Era: A New Frontier," *Al-Salam Journal for Engineering and Technology*, vol.2, no.2, pp.116–127, April 2023. https://doi.org/10.55145/ajest.2023.02.02.015

[16] A. Amjad, P. Kordel, and G. Fernandes, "A Review on Innovation in Healthcare Sector (Telehealth) through Artificial Intelligence," *Sustainability*, vol.15, no.8, pp.6655, April 2023. https://doi.org/10.3390/su15086655

[17] F. Nyante, E. A. Akuffo, A. Addy, and G. B. Mensah, "Ghana's Health Professions Regulatory Bodies Act, 2013 (Act 857) and its Adequacy in Governing Healthcare Delivery and Medical Negligence Issues," *International Journal for Multidisciplinary Research*, vol.6, no.1, pp.1-9, February 2024. https://doi.org/10.36948/ijfmr.2024.v06i01.11993

[18] GhanaWeb (2022). $6.3 million Funds for Ministry of Health's Digital Systems Upgrade. GhanaWeb Online

[19] R. Gaayire, S. N. Nikoi, and R. Adams, "Improving Banking and Financial Services in Ghana with Big Data Analytics, a Case Study Of Amantin and Kasei Community Bank," *International Journal Of Latest Technology In Engineering & Management*, vol.8, no.2, pp.7-13, April 2023.

[20] N. K. Gyamfi, P. Appiah, and A. Aidoo, "Anomaly Detection Framework for Big Data from Ghana Perspective," Proceedings of the World Congress on Engineering and Computer Science, pp.1-7, 2018.

[21] E. E. Brobbey, E. Ankrah, and P. K. Kankam, "The role of artificial intelligence in integrated marketing communications. A case study of Jumia Online Ghana," *Inkanyiso: Journal of Humanities and Social Sciences*, vol.13, no.1, pp.120-136, August 2021.

[22] W. O. Ofori and M. Cobblah, "Unlocking the potential: A systematic analysis of big data applications in Ghanaian academic libraries," *Information Development*, 2024. https://doi.org/10.1177/02666669241227912