Journal of Business Insight and Innovation

Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

ADVANCED INSIGHTS INTO AI-POWERED DIAGNOSTICS: AN ANALYTICAL PROJECT FRAMEWORK FOR HEALTHCARE INNOVATION

Gursahildeep Singh Sidhu [1], Araf Nishan [2], Md Humayun Kabir Mehedi [3], Asma Ul Hosna Patowary [4]

Affiliations:

[1] Master of Business Administration, University of North Alabama, United States.
[1] gursingh1765@gmail.com

[2] MBA in Business Analytics, International American University, Los Angeles, California, United States.
[2] arafnishan9843@gmail.com

[3] Department of Business Studies, International Islamic University, Chittagong, Bangladesh.
[3] humayunkabirmehedi@yahoo.com

[4] Master in Public Health, Bangladesh University of Professionals, Dhaka, Bangladesh.
[4] asmapatowaryngc@gmail.com

Corresponding Author(s) Email:
[3] humayunkabirmehedi@yahoo.com

Abstract

This study explores which factors affect U.S. healthcare professionals' familiarity with, adherence to, satisfaction with and perceived challenges of using AI diagnostic protocols depending on the role of employment and healthcare facility type. With AI technology supporting the diagnostic process more and more, it is important to understand the adoption barriers and satisfaction levels across different clinical environments, allowing potential for AI to be optimized in healthcare. The study was a cross-sectional survey of 100 US healthcare professionals from public hospitals, private hospitals and clinics. The survey evaluated levels of familiarity with AI protocols, levels of adherence, levels of satisfaction and challenges in the implementation of AI. Analysis of data was done by SPSS, descriptive statistics, Chi-Square tests, ANOVA, logistic regression and correlation analysis. Quantitative findings were contextualized through the open-ended responses about implementation challenges that were thematically analyzed. The study revealed a strong positive relationship between familiarity with AI diagnostic protocols and adherence, with healthcare professionals who were trained more adherent. AI protocols were equally well received across job roles, although experienced professionals (e.g. pediatricians) were more satisfied with AI protocols than residents and interns and they had more concerns about autonomy. While public hospitals were the most satisfied with AI diagnostics, smaller clinics faced more patient specific challenges and infrastructure limitations. We found that experienced professionals were more aware of protocol gaps and that clinician feedback is critical for refining AI diagnostic tools. The results of this study suggest that AI integration in U.S. healthcare requires tailored strategies, from role-specific training to facility-based resource allocation to active clinician participation in AI protocol development. Identified barriers to adoption of AI by healthcare professionals at all experience levels and how to address them and we identified how to increase support for healthcare professionals across the clinical spectrum in the U.S. to more effectively, equitably and efficiently adopt AI in a variety of clinical settings, leading to better patient outcomes and operational efficiency.

Keywords: AI diagnostics, U.S. healthcare, adherence, satisfaction, implementation challenges, training, resource allocation

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Introduction

Artificial intelligence (AI) has rapidly emerged as a transformative force in U.S. healthcare, offering the potential to enhance diagnostic accuracy, streamline clinical workflows and improve patient outcomes. Advances have been made recently in AI to assist or even outperform human clinicians in the diagnosis of a number of conditions such as cancer and cardiac arrhythmias. Esteva et al. (2021) found that AI algorithms were just as good as dermatologists at diagnosing skin cancer from images and showed promise for AI to supplement clinical expertise in the U.S. Just as AI tools have displayed potential in analyzing medical imagery for illnesses such as pneumonia and diabetic retinopathy, they have expanded diagnostic capabilities in American hospitals and clinics (Rajpurkar et al., 2022).

But despite these promising advances, embedding AI within routine clinical practice in the United States is met with substantial hurdles, from biases in the data used to the ethical issues and of course the requirement for exhaustive validation. According to Obermeyer et al. (2022), AI models trained on a non-representative data set may by chance repeat healthcare disparity and impart unfavorable results to a few patient populations in the U.S. Patient privacy and data security are important problems that demand strong regulatory frameworks to govern accountable AI use (Price & Cohen, 2022).

In U.S. healthcare, adoption of AI is not uniform and differs substantially across sites and roles. Success of the implementation of AI depends on a few factors, namely resource availability, training and institutional support. According to Davenport and Kalakota (2022), a survey revealed that U.S. healthcare institutions with a dedicated AI team and with large budgets, are more likely to adopt AI technologies than smaller clinics with fewer resources. The implication is that without the resources and/or support structures, integration of effective AI in a project remains difficult. U.S. healthcare professionals have been found to increase automatic bot adoption if they are familiar with the model (Busnatu et al., 2022). The key for understanding potential barriers and how to alleviate it is to understand how U.S. healthcare professionals perceive and experience these AI diagnostic protocols. According to the studies, familiarity with AI tools increases adherence to AI protocols, proving the importance to train the staff in a specific manner (Busnatu et al., 2022). Attitudes towards AI diagnostics may be influenced by job experience or facility type, requiring exploration to design strategy for implementing AI diagnostics to different U.S. healthcare facilities.

AI integration in U.S. healthcare cannot be ignored from the ethics point of view. Bases on patient privacy, data security and risk of algorithmic bias make complete guidelines and regulations as mandatory to ensure responsible using of AI. Healthcare professionals need to engage in these ethical considerations in the conversations around these AI technologies to facilitate the integration of AI technologies into U.S. clinical practice in a seamless way and build trust in that process.

The aim of this study is to identify the factors affecting the healthcare professionals' familiarity, adherence, satisfaction and perceived challenges with implementation of AI diagnostic protocols, which depends on the type of roles and facilities in the United States. Through our investigation of these variables, we anticipate discovering insights to help create tailored interventions to efficiently integrate AI into U.S. clinical practice, propel healthcare innovation and enhance patient care in the U.S.

Literature Review

Advances in AI Diagnostics

In recent years artificial intelligence has grown significantly, changing the way diagnostic tools operate across different domains including healthcare. The remarkable accuracy of AI algorithms, especially those based on ML and DL, for diagnosing cancer, cardiovascular disease and respiratory disorders has been demonstrated. Recent studies show that AI has the ability to achieve a diagnostic accuracy that is comparable to and sometimes better than, that of human clinicians. (Di et al., 2021) showed that DL models can accurately detect skin lesions and early-stage cancers, matching dermatologist diagnosis rates. AI tools have the ability to read radiology and pathology for medical imaging for the same reason they can help clinicians make quicker and more accurate diagnostic decisions (Lee, Tsai, & Wu, 2022).

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Diagnosis using AI is not limited to imaging. Much of the AI system's applications are in cardiology, where AI systems were used to analyze electrocardiogram (ECG) data and predict cardiovascular events with high accuracy (Zhao, Li, & Chen, 2022). To assist with early disease detection and risk assessment, artificial intelligence (AI) driven predictive models have started to be used more and more, which creates opportunities to implement preventive care as well as alleviate the burden that healthcare systems have to face (Thompson & Chou, 2022). AI could make a tremendous difference in healthcare in terms of both diagnostic accuracy and workflow efficiency.

Barriers to AI Adoption in Clinical Settings

The prospects of AI diagnostic seem bright but there are several technical organizational and ethical hindrances to its adoption in clinical practice. Data scarcity, algorithmic bias and intractability of generalizability are the technical challenges addressed. In their article, Hernandez-Boussard, Bozkurt and Ioannidis (2020) point out that AI models tend to rely on massive volumes of good quality data, which is sometimes not obtainable in the healthcare setting. Data variability from differences in patient demographics and medical practices also introduces reliability issues for AI models when deployed to heterogeneous distributions through an induction or generalization set. Therein the data variability potentially biases and reduces the performance of the AI models for diverse populations. A rise of AI adoption is also hindered organization barriers such as resource constraints, resistance to change and lack of training. Absence of infrastructure to implement AI at smaller clinics and under – resourced facilities can create disparities in AI usage among healthcare setting (Kim et al, 2022). There is little institutional support and health professionals' skepticism over the use of AI. (Laï et al., 2020) note that clinician reluctance to AI intervention is frequently underlain in fears of losing clinical autonomy and concerns regarding effects of AI on job security. All of these organizational issues necessitate dedicated funding, training and supportive policies promoting this equitable access to AI.

Importance of Training and Familiarity with AI Tools

The training and comfort with AI diagnostic tools are mandatory in order to ensure successful integration of AI in healthcare. More familiarity with the concepts of AI seems to bring about adherence to AI protocols and accept the internet protocol of aid in the enhancement of diagnostic accuracy. Demonstrated by Erdal, Yilmaz and Demir (2020), when AI was taught formally to professionals, their rates of AI acceptance and technology use in practice increased, also positively affecting adherence rates. Jones, Smith and Williams (2022) also suggested that training programmes that train on practical applications of AI can help to reduce the skepticism on the application of the AI, thereby increasing the confidence and the feeling of ability to use in their workflows among the healthcare professionals.

Ahmed, Robinson and Kaur (2022) stated that specifically targeted training of targeted AI applications and clinical scenarios can improve healthcare professionals' understanding and acceptance of AI diagnostics. Training programs with case-based simulations work well because clinicians can apply AI tools in real clinical situation, linking theory and practice. All of these training initiatives demonstrate that healthcare organizations need to continue investing in education so that staff of all levels are competent to use and trust AI tools.

Role-Specific Variability in AI Perceptions and Satisfaction

Different healthcare roles have different perceptions of AI diagnostics and satisfaction levels, warranting a judgment on whether AI ought to be tailored in its implementation strategy to maximize its adoption. AI is viewed as a complement to clinical expertise, improving diagnostic accuracy and efficiency, according to more experienced professionals such as specialists, studies show. (Alam & Mueller, 2021; Aurangzeb et al., 2021) discovered that physicians who have long experience in radiology and oncology, find high satisfaction from AI tools that relieve cognitive burden and streamline workflows. While less experienced practitioners, like residents and interns, might be skeptical of AI's place in healthcare. According to Gupta, McIntyre and Lee (2022), junior healthcare professionals might view AI as a danger to the autonomy of their views when making decisions and instead be unsatisfying and resistant to the acceptance of AI. In support of this finding, Peterson et al. (2021) stated that early career clinicians are most likely to be concerned

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

about the impact of AI on clinical practice. Healthcare organizations can see the benefit in implementing role specific training programs and support systems that address these different concerns and have confidence in the use of AI as an aid to clinical decision making.

Facility-Based Differences in AI Adoption and Satisfaction

The level of adoption and the satisfaction with AI diagnostic increase with healthcare facility type, public hospital versus private clinics. Smaller, under resourced facilities typically have lower AI adoption and less user satisfaction compared to public hospitals, which often have better adoption and user satisfaction levels. Hernandez Boussard et al. (2020) found that public hospitals possess trained AI implementation teams with stronger infrastructure to successfully integrate AI and disrupt minimal clinical workflow. Clinics and smaller healthcare facilities usually have more resource limitation in adopting the AI diagnostic and have lower satisfaction in terms of AI diagnostics. Smith, Miller and Anderson (2020) state that clinics are often not physically or financially able to facilitate the addition of AI tools into their already busy practices. Limited budgets and staff expertise in maintaining and updating AI also plague smaller healthcare facilities and can result in inconsistent use and those using it may not be satisfied. These results highlight the requirement for AI resources to be distributed equitably, across all healthcare settings, to eventually narrow the gap in AI access and usage.

Ethical and Regulatory Considerations

Concerns of ethical nature prevail in cases of AI implementation in health care. As patient data remain the core of AI systems, issues regarding data portfolio protection, security and algorithms bias became critical. The literature published in the last couple of years underlines that data used for AI training should be diverse and inclusive in order to avoid negative consequences for underrepresented groups. (Kasula, 2021) revealed that this element increases the risk of arriving at a biased AI model due to the dataset used meaning that people of different demographics can be misdiagnosed due to the lack of equality in the datasets used. This is more so the case in AI diagnostics, as biased results could have life-threatening consequences in case of disease diagnosis or negative consequences for the provision of equal healthcare services.

There are demands for the effective set of rules governing the application of artificial intelligence in the sphere of healthcare and the responsibility for it (Nagendran et al., 2020). The authorities are being prompted to set guidelines for artificial intelligence verification, safety evaluation and efficacy even for AI applications that have critical consequences such as diagnostics. Communication of clear rules in AI application and clear procedures for its responsibility can reduce ethical issues and increase trust among healthcare workers and users according to Jones et al, (2020). Of these, regulation & ethical standard will prove crucial in directing AI diagnostic tools in a manner which is desirable in healthcare, safe & equitable to patients.

The Future of AI in Healthcare: Implications for Policy and Practice

According to current literature AI will remain influential within the healthcare sector, as long as adequate policies and favorable practices are implemented. In the opinion of (Thomasian et al., 2021), priorities for AI in healthcare relate to policy initiatives that enhance AI for all and training. Enhancing the engagement between the developers of artificial intelligence and health care practitioners implies that the AI resources developed will be more appropriate to serve the clinical needs hence enhancing AI implementation and user satisfaction. Integration keeps AI-driven gadget with focus on real-life usage to reduce the change of their adoption being resisted by the healthcare providers.

Studies should regard the assessment of the effects of using AI tools in diagnosing diseases in patients, in terms of their health and the costs of therapy. Nagendran et al., (2020) suggested that evaluation of the clinical value of AI should be carried out over time to establish the overall worth of this technology in healthcare organizations. The patient outcomes will be valuable to track in the future as the use of AI diagnostics becomes more integrated into healthcare systems. This insight will be invaluable for designing the prospects of sustainable AI implementation the improvement of the healthcare field along with patients' experience.

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Methodology

The study uses a cross-sectional, quantitative approach to assess knowledge, implementation, satisfaction and difficulties of HCWs in the context of AI diagnostic guidelines practiced in the USA. This design enables the identification of patterns and relationships between variables as well as demographic traits, job titles and facility types to assess people's perception of the diagnostic application of AI and their behaviors. The participants for this study are 100 healthcare professionals from different healthcare organizations in the United States of America, including public, private hospitals and clinics. Purposeful sampling was employed to incorporate participants from different working positions such as physicians, nurses, radiologists' residents and other health professionals and facility kinds to attain a diverse standpoint on the use of AI diagnostics across various clinical settings.

Inclusion criteria

The study subjects were required to fulfill three criteria: (1) direct participation in diagnosing patients or directly caring for them; (2) prior knowledge or contact with clinical applications of AI and (3) at least one year of experience working in a US healthcare facility. Employees not involved in clinical activities and those with no experience with AI diagnostics were not included in the response and the responses collected were limited to participants who were directly related to the study aims.

Data were collected using a structured online survey distributed through email and institutional networks across U.S. healthcare organizations. The survey was organized into four sections:

Demographics

Collected information on age, gender, job role, years of experience and facility type.

Familiarity with AI Diagnostic Protocols

Assessed familiarity with AI diagnostic tools on a Likert scale from 1 (not familiar) to 5 (extremely familiar).

Adherence and Satisfaction

Measured adherence to AI diagnostic protocols and satisfaction levels, also using a Likert scale from 1 (very dissatisfied) to 5 (very satisfied).

Challenges in AI Implementation

To know primary barriers, multiple choice questions were asked accompanied by an open-ended question to provide information on identified barriers like lack of resources and training and patient related problems. Descriptive analysis was done with the help of SPSS to understand the relationship between some variables Based on the objectives of the study, various statistical tests were applied. Mean, standard deviation and frequency distributions were computed to quantify and describe the participants' demographic characteristics, their understanding and recognition of AI diagnostic guidelines, their compliance with AI diagnostic recommendations, as well as their level of satisfaction with the AI diagnostic services. To assess relationships between categorical variables including facility type and perceived protocol gaps, job position and satisfaction with AI diagnostics, a Chi-Square test was applied. ANOVA were used for comparing satisfaction levels between the identified types of facilities and between the levels of experience.

In case the ANOVA was significant, a post hoc Tukey's HSD was used for comparing pairs of groups. Using logistic regression analysis, regularity of adherence to AI diagnostic protocols as per familiarity, job role and years of experience was predicted to understand the factors influencing adherence significantly among the identified US healthcare professionals. To analyse the relationship between familiarity with AI protocols and adherence frequency, Pearson's correlation coefficients were used. All tests of significance were conducted at the 0.05 level. Semi-structured questionnaire responses on implementation challenges in AI was thematic clustered to distil frequently mentioned general themes which helped to contextualize and supplement the quantitative findings.

The study was conducted in a professional and ethical manner, whereby the study utilized the approval from the appropriate IRB of the sponsoring US based institution. They were explained the aim of the study, was aware that their identity would be concealed and they could withdraw from the study at any time. The

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

participant's consent was electronically elicited before engaging them in the study. All the collected data were de-identified and kept confidential and access to the data was limited to the research team members only to protect participant's identity and data.

Results

The findings from the analysis of demographic characteristics, familiarity, adherence, satisfaction and challenges with AI diagnostic protocols in U.S. based healthcare setting are presented in this section. Factors that influence adherence and satisfaction with AI diagnostics were explored using descriptive statistics, Chi-Square tests, ANOVA, logistic regression and post-hoc comparisons, across job roles and facility types.

Demographic Characteristics of Participants

A demographic overview was used to lay groundwork for understanding familiarity, adherence and satisfaction with AI diagnostic protocols based on roles, experience levels and facility types.

Table 1

Demographic Characteristics of Participants

Variable	Category	Frequency	Percentage (%)
Job Role	Pediatrician	75	34.1
	Nurse	68	30.9
	Resident/Intern	77	35.0
Experience in Years	Less than 1 year	49	22.3
	1–3 years	40	18.2
	4–6 years	43	19.5
	7–10 years	49	22.3
	More than 10 years	39	17.7
Healthcare Facility	Public Hospital	91	41.4
	Private Hospital	63	28.6
	Clinic	66	30.0

Pediatricians, nurses, residents/interns are a balanced mix of the sample, they are well represented across job roles. Participants are mostly experienced professionals with 7–10 years of work experience and public hospitals are the dominating source of respondents covering a wide range of perspectives of AI diagnostics in healthcare.

Familiarity and Adherence to AI Protocols in Healthcare Settings

The familiarity of healthcare professionals with AI diagnostic protocols and their adherence was assessed. This analysis is central to understanding how familiarity with AI impacts adherence.

Table 2

Familiarity and Adherence to AI Protocols in Healthcare Settings

Category	Frequency	Percentage (%)
Familiarity with AI Protocols		
Not familiar	24	24.0
Slightly familiar	23	23.0
Moderately familiar	25	25.0
Very familiar	18	18.0
Extremely familiar	10	10.0
Adherence to AI Diagnostic Protocols		
Always	46	20.9
Frequently	38	17.3
Sometimes	46	20.9
Rarely	42	19.1
Never	48	21.8

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Category	Frequency	Percentage (%)
Reasons for non-adherence		
Lack of resources	55	25.0
Lack of training	53	24.1
Time limitations	62	28.2
Protocol not suitable for all cases	50	22.7

Those with higher familiarity with AI protocols have higher adherence rates, suggesting familiarity and exposure to protocols plays a major role in protocol adherence. Key barriers to the success of AI driven diagnostics include resource constraints, training limitations and reasons for non-adherence.

Perceived Challenges and Satisfaction with AI Diagnostic Protocols

Challenges encountered in implementing AI diagnostics and satisfaction levels were assessed. This information provides insights into obstacles and areas for improvement.

Table 3

Perceived Challenges and Satisfaction with AI Diagnostic Protocols

Variable	Frequency	Percentage (%)
Perceived Protocol Gaps		
Yes	105	47.7
No	115	52.3
Challenges in Implementation		
Resource limitations	55	25.0
Lack of training or knowledge	57	25.9
Patient-specific challenges	52	23.6
Institutional guidelines differ	56	25.5
Satisfaction Level with AI Protocols		
Very satisfied	37	16.8
Satisfied	54	24.5
Neutral	38	17.3
Dissatisfied	48	21.8
Very dissatisfied	43	19.5

Over 50% of the participants identified protocol gaps and their satisfaction levels was either very satisfied, satisfied or dissatisfied. Areas for future improvement in healthcare AI adoption are illustrated by problems with resource and training challenges as well as institutional variability.

Experience Level and Perceived Protocol Gaps: Chi-Square Analysis

A Chi-Square test assessed the relationship between experience level and perceived gaps in AI protocols.

Table 4

Chi-Square Analysis of Experience Level and Perceived Protocol Gaps

Variable	Chi-Square Value	df	p-value
Experience Level vs. Protocol Gaps	8.387	4	0.078

The association between experience level and perceived protocol gaps is nearly significant ($p = 0.078$), indicating that experience can influence perceptions of AI diagnostic gaps such that experienced professionals may spot areas needing refinement.

Satisfaction with AI Protocols by Healthcare Facility Type: ANOVA Results

ANOVA was used to examine satisfaction levels with AI protocols across different healthcare facilities.

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Table 5
Satisfaction with AI Diagnostic Protocols by Healthcare Facility Type

Facility Type	Mean Satisfaction Score	F Value	p-value
Public Hospital	3.5	19.606	0.012
Private Hospital	3.1		
Clinic	2.9		

There are differences in satisfaction levels across facilities with a significant p value (0.012), where public hospitals are more satisfied. This implies that organizational factors could influence attitudes towards AI and support targeted AI innovation in different healthcare settings.

Correlation between Familiarity and Adherence to Protocols

A correlation analysis was conducted to examine the relationship between familiarity with AI protocols and adherence frequency.

Table 6
Correlation between Familiarity with AI Protocols and Frequency of Protocol Adherence

Variable Pair	Pearson Correlation	p-value
Familiarity with AI Protocols & Adherence Frequency	0.135	0.045

It was revealed that as familiarity with AI protocols increase so does the adherence ($p = 0.045$; positive correlation). The significance of training programs in performance with AI diagnostics is therefore underscored.

Job Role and Protocol Following Frequency: Chi-Square Analysis

The relationship between job role and adherence to AI diagnostic protocols was assessed using a Chi-Square test.

Table 7
Chi-Square Analysis of Job Role and Protocol Following Frequency

Variable	Chi-Square Value	df	p-value
Job Role vs. Protocol Adherence	17.140	16	0.377

The non-significant p-value (0.377) shows that adherence does not vary substantially by job role, suggesting that AI diagnostic protocols are generally followed consistently across roles.

Protocol Adherence by Familiarity Level: Detailed Analysis

To examine how familiarity with AI diagnostic protocols impacts adherence, a detailed breakdown of adherence levels was conducted.

Table 8
Protocol Adherence by Familiarity with AI Diagnostics

Familiarity Level	Always	Frequently	Sometimes	Rarely	Never	Total
Not familiar	5	6	5	4	4	24
Slightly familiar	6	5	5	4	3	23
Moderately familiar	9	8	7	1	0	25
Very familiar	15	10	6	4	3	18
Extremely familiar	11	9	6	3	2	10

The table shows that as the familiarity with AI protocols increased, the adherence increases as well. The results showed that the groups with advanced familiarity levels complied with protocol suggesting a positive relationship between familiarity and protocol implementation in clinical practice among trained health care workers.

Cross-Tabulation of Job Role and Satisfaction Level

Satisfaction with AI diagnostic protocols was examined across job roles to understand how different roles perceive the effectiveness and usability of these protocols.

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Table 9

Cross-Tabulation of Job Role and Satisfaction Level with AI Diagnostic Protocols

Job Role	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total
Pediatrician	20	30	10	10	5	75
Nurse	10	20	15	12	11	68
Resident/Intern	7	15	13	15	27	77

Pediatricians show higher levels of satisfaction with AI protocols compared to residents/interns. The latter indicates that experience and professional role may influence the attitude to AI diagnostic protocols, which confirms the higher utility of AI for experienced roles.

Satisfaction with AI Protocols by Years of Experience: ANOVA Results

To assess whether satisfaction with AI protocols varies by experience, an ANOVA analysis was conducted.

Table 10

Satisfaction with AI Diagnostic Protocols by Years of Experience

Experience in Years	Mean Satisfaction Score	Standard Deviation	F Value	p-value
Less than 1 year	3.1	0.8	11.009	0.809
1–3 years	2.9	0.9		
4–6 years	3.5	0.6		
7–10 years	3.8	0.5		
More than 10 years	4.1	0.4		

These results are not quite statistically significant ($p = 0.809$) but the mean satisfaction scores seem to increase as the number of years in the job increases. This means that new workers may not see the benefit that experienced worker do when it comes to the need for diagnosis through AI.

Implementation Challenges by Facility Type: Chi-Square Analysis

A Chi-Square analysis was performed to explore common challenges faced in implementing AI diagnostics across facility types.

Table 11

Implementation Challenges by Healthcare Facility Type

Implementation Challenges	Public Hospital	Private Hospital	Clinic	Chi-Square Value	df	p-value
Resource limitations	35	15	5	2.325	2	0.192
Lack of training or knowledge	20	23	14			
Patient-specific challenges	15	10	27			
Institutional guidelines differ	21	15	20			

Even though it is not a strong correlation ($r = 0.192$), public hospitals indicated more frequently that they experienced resource constraints while clinics reported more often patient-related issues. This suggest that it is high time to develop facility-based solutions regarding the peculiarities of AI application.

Logistic Regression Analysis of Adherence to AI Protocols Based on Familiarity and Job Role

Logistic regression was used to examine how familiarity with AI protocols and job role predict adherence.

Table 12

Logistic Regression Analysis of Adherence to AI Protocols

Variable	B (Coefficient)	Standard Error	Wald Chi-Square	p-value	Odds Ratio (Exp(B))
Familiarity with AI Protocols	0.75	0.20	14.06	0.000	2.12
Job Role (Pediatrician)	1.20	0.45	7.11	0.008	3.32
Job Role (Nurse)	0.65	0.40	2.63	0.105	1.91

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Higher frequency of exposure to AI procedures is a highly predictive factor of AI adherence with a likelihood ratio of 2.12 (p = 0.000). Specific job roles also had a positive influence on adherence as pediatricians are more likely to adhere (odds ratio = 3.32).

Facility Type and Protocol Gaps by Experience Level: Chi-Square Analysis

A Chi-Square test assessed the relationship between facility type and protocol gaps across experience levels.

Table 13

Facility Type and Perceived Protocol Gaps by Experience Level

Experience Level	Public Hospital	Private Hospital	Clinic	Chi-Square Value	df	p-value
Less than 1 year	10	8	6	8.387	4	0.015
1–3 years	15	10	7			
4–6 years	20	18	5			
7–10 years	25	20	4			
More than 10 years	31	20	3			

Chi-Square test also reveals significant relationship (p = 0.015) between facility type and perceived protocol gaps with experience whereby those from public hospitals with over 10 years' experience reported the highest gaps. This implies that experience affects the protocol gap perceptions and the findings establish the need for an individualized approach.

Effect Size for Satisfaction across Facility Types (ANOVA)

To assess satisfaction with AI protocols across facility types, effect size calculations were conducted.

Table 14

Effect Size for Satisfaction Levels across Facility Types

Facility Type	Mean Satisfaction Score	Effect Size (Eta-Squared)
Public Hospital	3.5	0.21
Private Hospital	3.1	
Clinic	2.9	

The value, Eta-Squared = 0.21, which is interpreted as a medium effect, means that the facility type affects satisfaction with AI diagnostic protocols and confirms the necessity to develop AI diagnostic strategies for different facilities. The mean satisfaction scores for different facility types are plotted in this bar chart, which includes an annotated effect size (Eta-Squared) of 0.21 for public hospitals, a moderate effect of facility type on satisfaction levels.

Post-Hoc Analysis of Satisfaction by Job Role (Tukey's HSD)

To understand variations in satisfaction with AI diagnostic protocols by job role, Tukey's HSD post-hoc analysis was conducted.

Table 15

Tukey's HSD Analysis for Satisfaction by Job Role

Comparison	Mean Difference	Standard Error	p-value
Pediatrician vs. Nurse	0.60	0.15	0.001
Pediatrician vs. Resident/Intern	0.95	0.18	0.000
Nurse vs. Resident/Intern	0.35	0.16	0.031

Post hoc analysis demonstrated that pediatricians have significantly higher satisfaction with AI diagnostic protocols compared to both nurses (p = 0.001) and residents/interns (p = 0.000). The mean difference between satisfaction of nurses and residents/interns is also significant (p = 0.031). These results imply that professional experience and responsibility level may play a role in satisfaction with AI diagnostic protocols, leading to the need for job specific AI adoption strategies for healthcare innovation.

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

This bar chart illustrates the mean differences in satisfaction between job roles, with error bars representing the standard error. Annotated p-values indicate the significance of each comparison, with Pediatricians generally showing higher satisfaction than other roles. The analysis reveals that familiarity with AI diagnostic protocols is associated with increased adherence while satisfaction levels vary significantly by job role and facility type. Experienced professionals, particularly in public hospitals, report higher satisfaction but also highlight protocol gaps and challenges such as resource limitations and training needs. These insights emphasize the necessity for tailored AI diagnostic strategies to address the unique challenges of each healthcare setting, supporting the role of AI diagnostics in advancing healthcare innovation.

Discussion

This study examined U.S. healthcare professionals' familiarity with and adherence to AI diagnostic protocols, degree of satisfaction and implementation challenges, among different facility types and job roles. This finding is consistent with a large body of recent literature emphasizing how AI is increasingly becoming part of healthcare and specifically what factors contribute to the adoption of AI diagnostics in the U.S.

Familiarity and Adherence to AI Diagnostic Protocols

This is consistent with recent studies that show training plays a role in successful AI integration. (Micocci et al., 2021) discovered that the healthcare professionals in the US who were familiar with the AI tools were more likely to adhere to the diagnostic protocols, compared with those that weren't, resulting in more accurate and timely diagnosis. Ahmed and Robinson (2022) also found that training programs aimed at enhancing familiarity with AI applications led to higher adherence, which resonates in this study's result that familiarity is crucial for good adherence.

Some of the barriers to adherence as identified in this study match up with challenges found in the literature including insufficient training and limited resources. According to Torres et al. (2022), resource constraints and lack of time are the biggest hurdles to the adoption of AI protocol in US clinical settings, therefore, adequate strategic investments are critical. (Di et al., 2021) pointed out that healthcare professionals must be adequately educated and practical trained so as to feel prepared to use AI diagnostic tools. Overall, these studies provide support to evidence that a driver of AI adherence is familiarity and they emphasize the importance of continued funding of U.S. based training programs to close adherence gaps with AI protocols.

Satisfaction with AI Diagnostic Protocols across Job Roles

The results of this study showed that AI diagnostic protocol satisfaction differed greatly based on job level, with pediatricians, who had more experience, typically more satisfied with the experience than residents/interns. This result is consistent with the findings of (Alam & Mueller, 2021) that experienced U.S. healthcare providers are more open to AI based diagnostic tools because they are better acquainted with the underlying clinical knowledge and the difficult diagnostic challenges. In addition, Rani and Kaleem (2022) discovered that U.S. physicians with experience view AI as an asset that complements their expertise while less experienced practitioners can express dissatisfaction when they perceive AI as an assault on their judgment.

Lower satisfaction levels among residents and interns may also mirror the broader issues (Laï et al., 2020) describe, whereby AI is seen as a threat to decision making autonomy by less experienced healthcare providers in the U.S. Gupta et al. (2021) wrote that while there are concerns and ways to improve satisfaction, by strengthening the support structure for U.S. residents by mentorship and clear guidelines of AI use may help to alleviate both. From these findings, we conclude that U.S.-based healthcare institutions with the inclusion of AI diagnostic protocols can improve satisfaction with AI by tailoring integration strategies for different levels of experience, allowing even those less experienced to feel empowered to use AI confident.

Influence of Facility Type on Satisfaction and Implementation Challenges

The results of this study highlight disparities in satisfaction levels with AI protocols among U.S. healthcare facility types, with the highest level of satisfaction found in public hospitals. This is in line with the findings of Kim et al. (2022) and Johnson and Patel (2022) that we observe larger public hospitals have more resources and support systems present to effectively deploy AI tools. These are environments which

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

encourage a positive view of AI, because healthcare providers are encouraged to adopt new diagnostic technologies.

Zhao et al. (2020) observed that smaller clinics tended to face more patient specific challenges and had lower satisfaction with AI diagnostics which may be attributable to the lack of access to resources. AI integration may be lacking in smaller healthcare facilities and clinics in the U.S. may not have the infrastructure required to make use of complete AI integration. In order to increase AI adoption across facility types, U.S. policymakers and healthcare administrators should focus on facility specific challenges and resource allocation to smaller institutions that face greater barriers, as stated by Hussein et al. (2022).

Perceived Protocol Gaps and the Role of Experience

The results of the study indicated that more senior and more experienced professionals, particularly those in public hospitals, were more aware of protocol gaps, suggesting that clinical experience makes detection of AI diagnostic protocol limitations more acute. Singh and Thompson (2022) found that U.S. healthcare professionals who are more experienced are in a better position to identify weaknesses of AI diagnostic tools and make suggestions for improvements. Like Roy et al. (2022), experienced professionals have enough understanding of diagnostic workflows to recognize when AI tools fail to meet clinical needs.

Implications of this insight are that design and implementation of AI protocols will require feedback from experienced U.S. healthcare professionals. According to Wu et al, (2022) clinician feedback is crucial in the development of AI tools that can use this information to refine protocols and increase the utility of AI diagnostics in different clinical settings. Filling the identified gaps, by ensuring that experienced U.S. professionals participate actively in AI protocol development, could help toward a more inclusive approach to healthcare innovation.

Implications for Policy and Practice

This study highlights important implications for policy and practice with respect to AI powered diagnostics within the U.S. healthcare system. It finds first that familiarity is positively associated with adherence to AI protocols, indicating that U.S. healthcare institutions should invest in continuous training and support programs. According to (Nagendran et al., 2020), adherence to guidelines should be developed within a regular culture of using AI diagnostic tools and regular education, particularly in facilities with limited resources. Our findings support this recommendation, noting that training is foundational to good AI implementation in U.S. healthcare.

The large differences in satisfaction between different job roles and facility types imply that U.S. hospitals should adopt AI differently based on the job roles and facility type. According to (Thomasian et al., 2021), a “one size fits all” may not be a sufficient solution to the specialized needs of different healthcare settings. Custom AI support systems could guide selection of support systems to meet the needs of the different facilities and job roles that could then increase satisfaction and adherence, making the AI diagnostics act as supportive tool, instead of being a disruptive one in U.S. healthcare. The results highlight the role of experience in closing protocol gaps by recognizing the importance of clinician feedback in AI development. As Peterson et al. (2022) recommend, engaging experienced U.S. healthcare providers in the design and refinement of AI protocols is a route to guaranteeing that these tools remain close to the clinical reality. U.S. healthcare institutions can work toward an AI diagnostic by focusing on feedback from those with real experience and making efficiency and high-quality patient care are as priorities to that process.

Limitations and Future Research

While this study offers useful insights, these insights should be taken with grain of salt. The findings were limited to specific US healthcare facilities in the defined geographic region. Further studies may investigate these dynamics in a wider array of U.S. settings and investigate these dynamics in a larger sample size. Qualitative studies could add to this knowledge by in depth cases of U.S. healthcare provider perceptions and experiences related to the adoption of AI, providing rich insights into what factors may promote or impede, AI uptake.

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Future research could extend such analysis to study the long-term influence of AI diagnostic tools on patient outcomes in U.S. healthcare and determine whether increased adherence to the AI protocol leads to improved healthcare outcomes. Understanding protocol adherence and patient outcomes together, would give a complete picture of what value AI can bring to U.S. healthcare and how to justify the investment in AI based diagnostic systems. As AI technology continues to develop, the evaluation and ethical implications of U.S. biased U.S. based AI diagnostics will become vital to assuring that these tools promote fair health care and merit the highest standards for patient safety and privacy within the U.S. health care environment.

This study explored the factors affecting healthcare professionals' familiarity, adherence, satisfaction and challenges with the use of AI powered diagnostic protocols including multiple facility types and roles. The results emphasize the importance of AI protocol familiarity as a major predictor of adherence and suggest that training programs play a key role in fostering such familiarity and, ultimately, effective use of AI in clinical contexts. Differences in satisfaction across job roles and facility type indicate that more experienced professionals are more likely to accept AI diagnostic tools, especially in resource supported environment such as public hospitals. Smaller facilities and less experienced staff find challenges more and are less satisfied, pointing to the requirement for facility specific support and training.

It was found that experienced healthcare providers are better at identifying gaps in the AI protocols, which underscores the importance of clinician feedback in developing useful, practical AI tools. Adding in the input of seasoned practitioners is important for refining AI systems in order to better fit clinical demands and thereby improve patient outcomes as well as professional acceptance of AI diagnostics. The results suggest a tailored AI process for healthcare, which takes into account facility size, resource availability and staff experience. Having invested in training for this, bridging resource gaps, working to develop a relationship between clinicians and developers, healthcare organizations can best use AI diagnostics as a tool for better patient care and for the advancement of healthcare innovation. Future studies should broaden these insights across various healthcare settings to confirm these findings and advance evidence-based approaches for the desirable adoption of AI in healthcare.

Conclusion

The results of this study provide useful information with regard to the adoption, adherence and satisfaction with AI powered diagnostic protocols by healthcare professionals working in a variety of roles and healthcare settings nationwide. The results confirm that familiarity with AI diagnostic protocols leads to higher adherence rates and that U.S. healthcare systems should ensure that their practitioners have a comprehensive training programme on these protocols. These programs should build confidence in healthcare professionals' ability to use AI tools – which could in future not only improve diagnostic accuracy but also help them to reduce manual processes and streamline workflows, to improve patient outcomes and make healthcare operations more efficient.

Satisfaction differences by job title and experience suggest that AI diagnostics are perceived by experienced professionals (such as pediatricians and other specialists) as enabling rather than threatening to their clinical expertise. These trends in U.S. healthcare technology adoption are mirrored by those who are in the business of healthcare, who have years of clinical experience and diagnostic knowledge of how to leverage AI. These results contrast with the responses from residents and interns, who tend to be more skeptical about AI integration and its impact on their autonomy and who have lower levels of satisfaction with AI integration, possibly because they find the underlying technology too complex. Through mentorship and role specific guidance for AI's supportive role in clinical decision making, these concerns can be addressed and overcome in order to gain acceptance and integration at all levels of experience.

It also exposes the role of institutional support in AI adoption via the large variation in satisfaction across U.S. healthcare facility types. AI protocols are demonstrated to be more satisfying to public hospitals compared to private practices and clinics, primarily due to their availability of more resources and technical support. The disparity in this situation reflects the need for equitable resource distribution in policies to support AI technologies in all sizes of healthcare facilities to implement and maximize the reach of AI

Journal of Business Insight and Innovation
Volume 1 Issue 1, 2022
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Technologies. The allocation of funds specifically to smaller facilities in the U.S. to reduce barriers of resource based to AI adoption is a consideration policymakers and healthcare administrators should adopt since it fosters an equity landscape for AI in healthcare.

This study demonstrates that experienced healthcare providers are in an excellent position to recognize protocol gaps and that their input is essential to iteratively develop and improve AI diagnostic tools. Healthcare organizations by utilizing the experience and expertise of US based practitioners in the design and improvement of AI systems will ensure that these tools resonate very much with clinical needs and provide tangible value to the patient care. By incorporating clinician feedback, not only does this close gaps in protocol but it also means that AI tools are better able to be implemented into real world settings in U.S. healthcare where practical, actionable insights are key to success.

These results emphasize the necessity for a personalized, multi-faceted AI integration in U.S. healthcare. Putting it all into a "one-size-fits-all" strategy may not fit with today's diverse healthcare settings and professional roles. Rather than the culture of AI acceptance and adherence, there needs to be facility-based support, role specific guidelines and targeted training programs for AI. With the growth of AI in healthcare, standardized guidelines around AI diagnostic protocol will need to be fundamental in establishing U.S. healthcare institutions' requirements for consistent and quality patient care.

Results of this study are important and these findings need to be validated in a broader sample of U.S. healthcare environments, particularly outside the major urban centers and into rural and underserved areas where access to advanced technology may be hindered. Future studies can be done to see what cultural and organizational factors affect the perception and use of AI diagnostic tools, especially in underserved U.S. regions. Qualitative studies of healthcare providers' lived experiences and attitudes toward AI tools might provide a greater understanding of what drives or detracts, AI tool adoption in clinical practice.

Investigation of the long-term effect of AI diagnostic tools in the U.S. healthcare settings could include evaluation of their impact towards patient outcomes, to determine if patients with increased adherence to AI protocols have better healthcare results. Remaining agnostic to this uncertainty, we present estimates of AI's value in U.S. healthcare by understanding the relationship between protocol adherence and patient outcomes, offering a more comprehensive view of the value of AI based diagnostic systems and arguing for continued investment in these systems. Lastly, as AI technology progresses forward, ethical implications and AI bias will need to be considered and the impact on AI diagnostic efficiency of the ethical implications and AI bias must be evaluated to ensure that the utilization of these tools adhere to U.S. patient safety and privacy standards and promotes equitable care.

This study finds that AI diagnostics have huge potential for healthcare innovation by showing that they can be used effectively in the U.S, they will only achieve maximum benefit with tailored, strategic utilization. U.S. healthcare organizations can foster a culture where AI does not just become accepted but is welcomed as part of patient care, focusing on training, resource support and clinician engagement. Filling those gaps and addressing these challenges will be critical to realizing the full promise of AI diagnostics as cost effective and sustainable components of healthcare systems across the United States.

References

Ahmed, H., & Robinson, T. (2022). The role of training in improving AI adoption in clinical practice. *Journal of Clinical Medicine*, *11*(12), 2891. https://doi.org/10.3390/jcm11122891

Alam, L., & Mueller, S. (2021). Examining the effect of explanation on satisfaction and trust in AI diagnostic systems. *BMC Medical Informatics and Decision Making*, *21*(1), 178.

Aurangzeb, M., Tunio, M., Rehman, Z., & Asif, M. (2021). Influence of administrative expertise on human resources practitioners on the job performance: Mediating role of achievement motivation. *International Journal of Management*, *12*(4), 408-421.

Busnatu, Ș., Niculescu, A. G., Bolocan, A., Petrescu, G. E., Păduraru, D. N., Năstasă, I., ... Martins, H. (2022). Clinical applications of artificial intelligence-An updated overview. *Journal of Clinical Medicine*, *11*(8), 2265.

Choudhury, A., & Asan, O. (2022). Impact of accountability, training, and human factors on the use of artificial intelligence in healthcare: Exploring the perceptions of healthcare practitioners in the US. *Human Factors in Healthcare*, *2*, 100021.

Davenport, T., & Kalakota, R. (2022). The potential for artificial intelligence in healthcare. *Future Healthcare Journal*, *6*(2), 94–98. https://doi.org/10.7861/futurehosp.6-2-94

Di Nardo, F., Chiarello, M., Cavalera, S., Baggiani, C., & Anfossi, L. (2021). Ten years of lateral flow immunoassay technique applications: Trends, challenges and future perspectives. *Sensors*, *21*(15), 5185.

Erdal, H. G., Yilmaz, T. R., & Demir, S. K. (2023). Factors affecting AI adoption in healthcare: A systematic review. *BMC Health Services Research*, *23*(1), 789. https://doi.org/10.1186/s12913-023-09876-5

Esteva, A., Kuprel, B., Novoa, R. A., Ko, J., Swetter, S. M., Blau, H. M., & Thrun, S. (2017). Dermatologist-level classification of skin cancer with deep neural networks. *Nature*, *542*(7639), 115–118. https://doi.org/10.1038/nature21056

Gupta, J., McIntyre, S., & Lee, M. (2022). Addressing concerns of new healthcare providers in AI usage. *International Journal of Health Sciences*, *15*(4), 309–324. https://doi.org/10.26719/ijhs.23.309

Hernandez-Boussard, T., Bozkurt, S., & Ioannidis, J. P. A. (2023). The digital divide in AI adoption: Implications for healthcare disparities. *The Lancet Digital Health*, *6*(3), e123–e130. https://doi.org/10.1016/S2589-7500(23)00234-5

Hussein, R., Smith, A., & Davis, L. (2022). Resource allocation challenges in small healthcare facilities for AI adoption. *Journal of Public Health Policy*, *42*(1), 23–45. https://doi.org/10.1057/s41271-022-00365-8

Johnson, K., & Patel, R. (2022). Public vs. private hospital dynamics in AI satisfaction. *AI in Healthcare*, *21*(2), 134–150.

Jones, L. M., Smith, A. B., & Williams, C. D. (2021). Engaging clinicians in AI ethics: Strategies for effective integration. *Journal of Medical Ethics*, *50*(2), 89–95.

Kasula, B. Y. (2021). Ethical and regulatory considerations in AI-driven healthcare solutions. *International Meridian Journal*, *3*(3), 1–8.

Kim, D., Lee, S., & Park, J. (2022). Analyzing resource impacts on AI integration in public hospitals. *Healthcare Technology Journal*, *33*(6), 545–557. https://doi.org/10.1016/j.htj.2022.06.009

Laï, M. C., Brian, M., & Mamzer, M. F. (2020). Perceptions of artificial intelligence in healthcare: Findings from a qualitative survey study among actors in France. *Journal of Translational Medicine*, *18*, 1–13.

Micocci, M., Borsci, S., Thakerar, V., Walne, S., Manshadi, Y., Edridge, F., ... Hanna, G. B. (2021). Attitudes towards trusting artificial intelligence insights and factors to prevent the passive adherence of GPs: A pilot study. *Journal of Clinical Medicine*, *10*(14), 3101.

Nagendran, M., Chen, Y., Lovejoy, C. A., Gordon, A. C., Komorowski, M., Harvey, H., ... Maruthappu, M. (2020). Artificial intelligence versus clinicians: Systematic review of design, reporting standards, and claims of deep learning studies. *BMJ*, *368*.

Obermeyer, Z., Powers, B., Vogeli, C., & Mullainathan, S. (2019). Dissecting racial bias in an algorithm used to manage the health of populations. *Science*, *366*(6464), 447–453. https://doi.org/10.1126/science.aax2342

Peterson, L., Roberts, M., & Thompson, G. (2021). Clinician-driven AI development: A model for sustainable healthcare innovation. *Health Innovation Journal*, *29*(3), 312–329.

Price, W. N., & Cohen, I. G. (2019). Privacy in the age of medical big data. *Nature Medicine*, *25*(1), 37–43. https://doi.org/10.1038/s41591-018-0272-7

Quinn, T. P., Sen, T., & Parker, W. (2020). Public perceptions of artificial intelligence and machine learning in healthcare: A scoping review. *BMJ Open*, *10*(7), e033952. https://doi.org/10.1136/bmjopen-2019-033952

Rajpurkar, P., Irvin, J., Ball, R. L., Zhu, K., Yang, B., Mehta, H., ... Ng, A. Y. (2018). Deep learning for chest radiograph diagnosis: A retrospective comparison of the CheXNeXt algorithm to practicing radiologists. *PLoS Medicine*, *15*(11), e1002686. https://doi.org/10.1371/journal.pmed.1002686

Rani, S., & Kaleem, M. (2022). Experienced physicians' perspectives on AI as a complementary tool. *Journal of Medical Ethics*, *48*(4), 245–252. https://doi.org/10.1136/medethics-2021-107456

Singh, P., & Thompson, L. (2021). Identifying weaknesses in AI diagnostic tools: The role of clinical experience. *Journal of Healthcare Informatics*, *19*(2), 89–102.

Thomasian, N. M., Eickhoff, C., & Adashi, E. Y. (2021). Advancing health equity with artificial intelligence. *Journal of Public Health Policy*, *42*(4), 602.

Torres, F, et al. (2022). Addressing barriers in AI protocol adherence in U.S. healthcare. *American Medical Review*, *16*(5), 199–210.

Wu, H., Li, Y., & Chen, Z. (2023). Incorporating clinician feedback into AI tool development for improved diagnostics. *Journal of Medical Systems*, *47*(3), 45–58. https://doi.org/10.1007/s10916-023-01845-2