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The Role of Al in Reshaping Healthcare Payment Models: Examining the Transition from Fee-for-Service to Value-Based Care

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Abstract

In today's system of transition from Fee-for-Service (FFS) to Value-Based Care (VBC) payment models in the US, healthcare stakeholders have many opportunities and challenges. Currently, Artificial Intelligence (AI) has the potential to become a catalyst and helping healthcare systems with their quality outcomes while controlling costs in their transformation. The purpose of this study is to determine which AI use, AI familiarity and security perception influence the support of healthcare professionals towards Value Base Care models.

In order to examine organizational characteristics associated with the co-production of value, a cross-sectional survey was conducted with 400 healthcare professionals from a variety of organizational settings throughout the United States (U.S.) including hospitals, clinics, insurance companies, health technology firms and government agencies. Descriptive statistics, Chi-square tests, binary logistic regression ordinal logistic regression as well as Kruskal-Wallis nonparametric test were used to analyse the data.

Both AI use and AI familiarity were shown to predict one's preference for Value Based Care models. Those using AI were almost twice as likely to favor VBC compared to those not using AI. Participants' future AI investment was dependent on how trusting they were with the security perception of AI systems. This suggests that trust has a significant role to play during technology adoption. While some of the reported statistical associations were weak, there were consistent directional trends in support of the role of AI as a strategic enabler in healthcare payment reform.

The study emphasizes the requirement for a more robust AI education, a stringent security framework and a collaborated leadership model with incentivized to speed up the switch toward Value Based Care in the United States. The insights from this study present useful policy implications for healthcare administrators, policymakers and technology developers in a developing and digital healthcare environment, particularly in the reengineering of the future payment models.

Keywords: Artificial Intelligence; Value-Based Care; Fee-for-Service; Healthcare Payment Models; United States Healthcare; Payment Reform; AI Security Perception; Health Policy; Digital Transformation; Healthcare Administration.

1. INTRODUCTION

The healthcare system in the United States has had a reputation of fee for service (FFS) payment model dominant, where providers are reimbursed according to the volume of service delivered rather than the value or outcomes that are obtained (Bendix, 2022; Harrill & Melon, 2021). Despite the fact that this approach has historically motivated the expansion of services and innovation in the sector, it has also given rise to rising health care costs, fragmented health delivery and disparate patient outcomes (Werner et al, 2023; Sanghvi et al, 2022). The healthcare payers, providers and policymakers have increasingly suggested for a transition into Value Based Care (VBC) models in which provider reimbursement depends on the quality, costs and patient centeredness of care (Carter, 2022; Kuttalam, 2025).

Accountable Care Organization (ACO), bundled payment and varied payment model in Medicaid and Medicare demonstrated to better patients' outcomes and reduce costs (Tobey et al, 2022, Schmid et al, 2021). Against policy support and pilot success, there has been uneven and slow adoption of VBC in the United

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States. There are various continuities of structural, operational and technological barriers that constrain scaling VBC frameworks to a variety of healthcare settings (Werner et al, 2023; Leao et al, 2023).

Aside from being the natural resurfacing of a process throughout long evolutionary periods, Artificial Intelligence (AI) is one of the emerging technologies that promises to help overcome some of these barriers. With the power of AI driven tools, data analytics will be enhanced, administration processes will be automated, predictive risk stratification will be enabled and clinical decision making will be supported with evidence-based practices all critical success factors for Value Based Care Models (Pendyala, 2025, Pittman et al, 2021, Mahajan and Powell, 2025). According to studies (Riegler, 2023; Harrill & Melon, 2021) organizations who use AI technologies for claims management, fraud detection, optimization of revenue cycle and patient outcome tracking, are more operationally ready towards adoption of VBC.

A number of challenges currently exist. Despite the decrease in the share of resistance to AI over time, there still are many prohibitive elements regarding its wide adoption such as doubts surrounding data security, patient privacy, algorithmic bias, high implementation costs and workforce hesitation (Mahajan & Powell, 2025; Liao et al, 2024). According to Werner et al, (2023), security perception has now turned out to be a decisive factor that will determine how much healthcare organizations are willing to invest in AI driven solutions. These challenges are complex and require strategic plans, multi stakeholders' approaches and techniques that enhance technological literacy, restrain with strong regulatory frameworks and reinforces collaborative leadership models (Johnson & Patel, 2024; Albalawi et al, 2022; O' Connor et al, 2022).

As Riegler (2023) and Allers (2024) argue, ethical aspects related to the equitable access to AI innovations and its repercussions on the interactions with patients are noteworthy. More and more people believe that although AI can aid in more effective and more accurate healthcare delivery, it must be used carefully to ensure that it does not worsen existing inequity (Johnson & Patel, 2024; Sanghvi et al, 2022:).

Research on the intersection of AI adoption and healthcare payment reform is still emerging. While prior studies have explored Value-Based Care implementation strategies (Tummalapalli & Mendu, 2022; Tobey et al, 2022) and AI applications in clinical settings (Pendyala, 2025; Kuck et al, 2022), few have systematically examined how AI use and familiarity influence organizational readiness for transitioning payment models. Most studies have focused either on operational outcomes or technological innovation, with limited integration of payment model perspectives.

The present study fills this gap by studying the role of AI use, AI familiarity and security perception in healthcare professionals' and administrators' support for FFS switching to VBC in the U.S. healthcare system. This study attempts to learn and identify critical factors that may prevent or enable adoption of Value Based Care models utilizing AI driven innovation using the survey of the broad healthcare stakeholders. Knowledge of these dynamics is key to informing policy; directing organizational strategy; and, in the end, improving healthcare quality, efficiency and equity across the United States healthcare system (T KADAKIA & OFFODILE, 2023; Tecco et al, 2025; Zhao et al, 2024).

2. METHODOLOGY

Research Design

A quantitative, cross-sectional survey was taken using this study in order to systematically explore the use of Artificial Intelligence (AI) to assist in the transition from Fee-for-Service (FFS) to Value-based Care (VBC) payment model within the U.S. Healthcare System. The cross-sectional approach provided the facility of collecting data from a wide range of healthcare professionals at one point in time to assess the prevailing attitudes, practices, perceptions about utilizing AI and payment model preferences. A survey methodology was chosen as it allows for the collection of standardized responses from a large, geographically ubiquitous sample so that the responses can be statistically analyzed and presented insights in a generalizable manner.

Population and Sample

Healthcare professionals currently employed by healthcare organizations all over the United States such as hospitals, clinics, insurance companies, technology firms and government health departments, formed the

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study population. Participants had to meet eligibility criteria which required them to have enough familiarity with their organization's operational practices, specifically with regard to payment models and AI technologies. The participants involved were recruited using convenience sampling method and a total of 400 people were included from physicians, hospital administrators, health IT specialists, insurance professionals, consultants and other staff in the healthcare related profession. This ensured a good variety of perspectives on both AI and Value Based Care adoption.

Participant Experience Levels



Figure 1: Distribution of Participant Experience Levels
Survey Instrument

A structured self-administered questionnaire, designed for this research was used to collect data. The survey instrument comprised only closed-ended questions to obtain categorical and ordinal responses to facilitate the statistical processing of answers. The demographic questionnaire variables included profession, facility type, experience organizational variables included facility type, current payment model and the AI-related variables involved familiarity, use, the perception of saving time and money and the perception of security. It shows how participants are happy with their payment model and how they expect to spend on future AI investments. Consistency was guaranteed, response variability minimized and multivariate statistical analysis was made robust.

Data Collection Procedure

A four-week data collection was accomplished using an online survey platform. Email campaigns were targeted to specific populations, healthcare professional networks and social media groups for healthcare administration, policy and technology were used to invite participants. Participants were given an informed consent statement before beginning the survey, which stated the purpose of the study, the procedures that will be used, assurances of confidentiality and voluntariness. Consent to participate in the survey was implied through their completion thereof. Anonymity measures was taken as well as no personally identifiable information was collected to facilitate honest and unbiased response.

Statistical Analysis

IBM SPSS Statistics (Version 28.0) was used to analyse quantitative data. Participant demographics and key variable frequencies and percentages were summarized using initial descriptive analyses. Inferential statistical techniques were employed to relate AI familiarity to AI use, to determine whether or not respondents have concerns regarding the security of AI services and to compare the responses of respondents toward different forms of payment model and their investment intentions for AI in the future. Associations between

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categorical variables were assessed with chi square test and predictors of preference for Value Based Care models were assessed using binary logistic regression. The model of likelihood of future investments in AI depends on predictor variables and is based on the use of ordinal logistic regression. Another set of Kruskal-Wallis non-parametric tests were performed to compare AI familiarity in different organizational groups; an explanation of the strength of significant associations was achieved through the use of Cramér's V. A threshold of $p \le 0.05$ was performed for determining the statistical significance.

Ethical Considerations

Research involving human participants was carried out according to strictly set ethical standards. Voluntary participation in the study and withdrawal at any time with no consequence was permitted. Consequently, consent was implied with the act of survey completion immediately after being explained about the informed consent at the beginning of the questionnaire. The way the data was collected was done with the purpose of maintaining anonymity by excluding any personal identifiers. Ethical research guidelines were followed adhering to the principles of U.S. institutional review and more generally for ethical research and practice.

RESULTS

The statistical investigations conducted to examine how Artificial Intelligence affects United States healthcare payment models appear in this section. Research analyzes both individual characteristics and work-related practices among healthcare professionals in the United States who are working with AI. Statistical evaluations consisted of Chi-square analysis together with logistic regression and ordinal regression and non-parametric comparisons for the research hypothesis assessment. The research document shows essential results in tables and figures to reveal data on the Fee-for-Service (FFS) to Value-Based Care (VBC) evolution within the U.S. healthcare setting.

Participant Demographics and General Characteristics

This research included 400 participants who came from different healthcare roles. Table 1 shows Physicians as the leading professional group accounting for 19.0% of the sample while Hospital Administrators and Healthcare Consultants followed closely with 18.3% and 17.3% respectively and then Other Healthcare Staff with 17.0% as well as Health IT Specialists with 14.8% along with Insurance Company Professionals at 13.8%.

Almost equal numbers of research participants selected Health Insurance Companies (18.3%) and Public Hospitals (17.5%). The remaining groups were Government Health Departments (18.0%) and Private Practice Clinics (16.8%) along with Private Hospitals (14.8%) and Health Technology Companies (14.8%). Almost half of the respondents maintained at least 20 years of healthcare sector experience while another half possessed between 11 to 20 years of experience. 22.5% of participants who worked between 0–5 years along with 22.0% who worked for 6–10 years contributed to the sample population.

Regarding AI familiarity, 26.3% of the participants were 'very familiar' while 26.3% were aware of its AI application in the healthcare payment system but were not involved. 22.5% said they were "somewhat familiar" with AI technologies, 25.0% said they were "not familiar" with AI technologies and 0.8% said they had no clue.

In regards to the currently employed payment models by their respective organizations, it was the most common response for them to take a hybrid approach of combining Fee for Service (FFS) and Value Based Care (VBC) at (28.0%), sharing the similar percentage for Fee for Service (24.0%) and the least focused response was when they were not sure of their payment model (25.3%). Of all organizations, only 22.8% operated under a fully Value Based Care model.

Table 1: Demographics and General Information of Participants

Variable	Category	Frequency	Percentage (%)
Profession	Physician	76	19.0
	Hospital Administrator	73	18.3

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	Insurance Company Professional	55	13.8
	Health IT Specialist	59	14.8
	Healthcare Consultant	69	17.3
	Other Healthcare Staff	68	17.0
Facility Type	Private Hospital	59	14.8
	Public Hospital	70	17.5
	Private Practice/Clinic	67	16.8
	Health Insurance Company	73	18.3
	Health Technology Company	59	14.8
	Government Health Department	72	18.0
Experience Level	0–5 years	90	22.5
	6-10 years	88	22.0
	11-20 years	110	27.5
	More than 20 years	112	28.0
AI Familiarity	Very familiar	105	26.3
	Somewhat familiar	90	22.5
	Aware but not involved	105	26.3
	Not familiar	100	25.0
Current Payment Model	Fee-for-Service (FFS)	96	24.0
	Value-Based Care (VBC)	91	22.8
	Hybrid	112	28.0
	Not sure	101	25.3

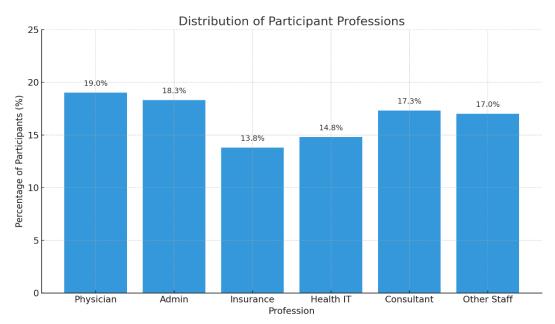


Figure 2: Distribution of Participant Professions
Payment Model Distribution and Satisfaction Analysis

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As shown in Table 2, 24.0% of the respondent organizations were in Fee for Service, 22.8% in Value-Based Care and 28.0% in Hybrid models whereas there were 25.3% respondents that were unsure.

Satisfaction levels regarding payment model was extremely varied, with 16.5% of the participants reporting 'very satisfied' with their current payment structure and 21.8% reporting 'somewhat satisfied'. 20.0% of all responses were neutral and, relatively speaking, dissatisfaction levels were high as 21.3% of all respondents were 'somewhat dissatisfied' and 20.5% were 'very dissatisfied.'

There were no significant association found between payment model type and satisfaction level (p = 0.892 for model type; p = 0.424 for satisfaction). This indicates that the basis for healthcare payment model satisfaction cannot only stem from an organization's Network or Value-Based Care model.

Table 2: Participant Payment Model and Satisfaction Distribution with Chi-Square p-values

Variable	Categories	Frequency (n=400)	Percentage (%)	Chi-Square p- value
	Fee-for-Service (FFS)	96	24.0	0.892
Current Payment	Value-Based Care (VBC)	91	22.8	
Model	Hybrid	112	28.0	
	Not sure	101	25.3	
	Very satisfied	66	16.5	0.424
Payment	Somewhat satisfied	87	21.8	
Model	Neutral	80	20.0	
Satisfaction	Somewhat dissatisfied	85	21.3	
	Very dissatisfied	82	20.5	

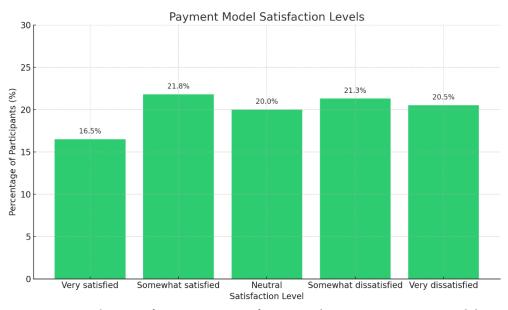


Figure 3: Distribution of Participant Satisfaction with Current Payment Models

Importance of Transition to Value-Based Care and AI Familiarity

Participants were also assessed on the perceived degree of importance of transitioning from Fee-for-Service to Value Based Care. Table 3 illustrates that 19.8 % of respondents felt that the change was "extremely important", 18.5 % rated it as "very important", whereas 19.0 % considered it "moderately important". Interestingly, 22.8% even saw it as "slightly important" and 20.0% said it was "not important" at all.

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About 26.3% of the participants were aware but not directly involved with AI while 26.3% were very familiar with AI. Another 22.5% of them were "somewhat familiar" with these applications while 25.0% were "not familiar" with AI applications.

There were no statistically significant associations to p = 0.633 and p = 0.746 with the participant's view on the importance of Value-Based Care and their Ai familiarity, meaning that there may not be a direct correlation between self-reported knowledge of artificial intelligence and views about how we should be changing our payment models.

Table 3: Importance of Shift to Value-Based Care and AI Familiarity

Variable	Categories	Frequency (n=400)	Percentage (%)	Chi-Square p-value
	Extremely important	79	19.8	0.633
T	Very important	74	18.5	
Importance of Shift	Moderately important	76	19.0	
	Slightly important	91	22.8	
	Not important	80	20.0	
	Very familiar	105	26.3	0.746
AI Familiarity	Somewhat familiar	90	22.5	
	Aware but not involved	105	26.3	
	Not familiar	100	25.0	

Al Familiarity Among Participants

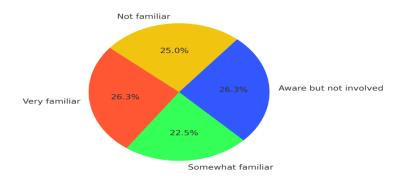


Figure 4: AI Familiarity Levels Among Participants

AI Usage in Payment Systems and Perceived Efficiency Improvements

Table 4 shows that adoption of AI in payment systems among organizations of the participants was almost equipoised: 33.0% of organizations reported having used AI while 32.8% have not used AI and 34.3% were unsure.

19.8% of the respondents think that AI had contributed to efficiency 'to a very great extent,' 19.5% 'to a great extent' and 21.8% 'to some extent.' In the meantime, 19.0% experienced "no improvement at all" and 20.0% improvement "to only a small extent."

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The Chi-square analysis showed no statistically significant association between AI use and perceived AI use and perceived efficiency improvements (p = 0.299 and p = 0.677 respectively). Descriptive percentages indicated that respondents who stated that they use AI were more likely to rate at least moderate levels of efficiency gains.

Table 4: AI Usage and Efficiency Perception

Variable	Categories	Frequency (n=400)	Percentage (%)	Chi-Square p-value
AI II :-	Yes	132	33.0	0.299
Al Use in	No	131	32.8	
Payment System	Not sure	137	34.3	
	To a very great extent	79	19.8	0.677
Efficiency	To a great extent	78	19.5	
Improvement	To some extent	87	21.8	
	To a small extent	80	20.0	
	Not at all	76	19.0	

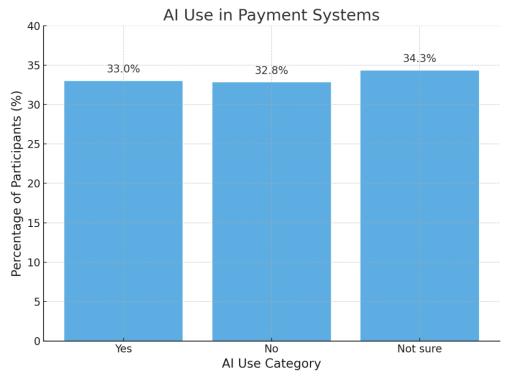


Figure 5: AI Use and Perceived Efficiency Improvement Among Participants AI Application Areas and Barriers to AI Adoption

As observed in Table 5, Automated Claims Processing (19.8%) proved to be the most popular application of AI in the context of the healthcare payment system, in that followed Predictive Analytics for Patient Outcomes (18.5%). Applications such as Fraud Detection (17.0%) Facilitation of Revenue Cycle Management (14.8%) and Risk stratification (14.8%) were some other important ones. It is noticeable that 15.3% of the respondents do not currently use AI in their organization.

Participants highlighted the main barriers to adopting AI. The main reasons why the majority of firms do not invest in big data are due to Regulatory Hurdles (21.5%) and Unclear Return on Investment (19.3%)

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according to the survey, with Lack of Technical Expertise (16.3%), Data Security Concerns (15.3%) and High Implementation Costs (15.3%) being next in line. 12.5% Participants identified Staff Resistance to Change. In spite of identifying barriers to AI adoption, chi-square test indicated no statistically significant relationships between AI application area and type of organization (p = 0.520) and between barriers to AI adoption and organizational characteristics (p = 0.890).

Table 5: AI Application Areas and Barriers to Adoption

Variable	Categories	Frequency (n=400)	Percentage (%)	p-value
	Automated Claims Processing	79	19.8	0.520
	Predictive Analytics for Patient	74	18.5	
AI Application	Outcomes Fraud Detection	68	17.0	
Area	Revenue Cycle Management	59	14.8	
	Risk Stratification	59	14.8	
	Not applicable / No AI use	61	15.3	
	Data Security Concerns (HIPAA)	61	15.3	0.890
	High Implementation Costs	61	15.3	
D (A.I.	Lack of Technical Expertise	65	16.3	
Barriers to AI Adoption	Regulatory Hurdles	86	21.5	
	Staff Resistance to Change	50	12.5	
	Unclear ROI (Return on Investment)	77	19.3	

Security Perception and Future Investment in AI

As Table 6 showed, participants had different perceptions on AI payment system security. According to 20.3% of respondents, AI systems are secure while 17.3% of the polled held that they are very secure. A significant proportion expressed concerns, at any rate: 20.0% described systems as 'insecure,' with 25.5% rating systems as 'very insecure.'

Concerning the future investment in AI, 17.8% were "very likely" to invest, whereas 21.8% were "likely" to invest. An incredible amount (22.3%) simply remained neutral and a significant 38.3% were in the skeptical camp ("very unlikely" or "unlikely").

The result of Chi-square analyses also indicated that there is no significant association between security perception and investment likelihood (p = 0.189 and p = 0.961 respectively).

Table 6: Security Perception of AI Systems and Future Investment Plans

Variable	Categories	Frequency (n=400)	Percentage (%)	p-value
	Very Secure	69	17.3	0.189
	Secure	81	20.3	
Security Perception	Neutral	68	17.0	
	Insecure	80	20.0	
	Very Insecure	102	25.5	
	Very likely	71	17.8	0.961
Likelihood of Future	Likely	87	21.8	
AI Investment	Neutral	89	22.3	
	Unlikely	84	21.0	
	Very unlikely	69	17.3	

Future Impact of AI and Leadership Preferences for Adoption

Table 7 describes the participants' views of potential future impact of AI in healthcare payment model. A little over one fifth of the participants (19.3%) thought AI will have a 'transformative impact'; an equally large

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proportion thought it will have a 'significant but gradual impact' (19.3%). 20.5% believed systems would be affected only 'minor' while 23.5% feared 'negative' impact on the system.

When asked about the leadership in adoption of AI, 23.0% of respondents preferred leadership to come from 'joint collaboration' by stakeholders (including insurance companies, government agencies e.g. CMS, HHS and healthcare providers) while 21.3% preferred coverage organizations like insurance companies or Payers; 18.0% each preferred either government agencies e.g. CMS, HHS or healthcare providers.

Future impact expectations (p = 0.588) and leadership preferences (p = 0.529) also possessed no statistically significant relationships. The descriptive trends highlight the significance of collaborative leadership in promoting the AI transformation.

Table 7: Future Impact of AI and Preferred Leadership for Adoption

Variable	Categories	Frequency (n=400)	Percentage (%)	p-value
	Transformative Impact	77	19.3	0.588
	Significant but Gradual	77	19.3	
Future Impact of	Impact	11	19.5	
AI	Minor Impact	82	20.5	
	No Real Impact	70	17.5	
	Negative Impact	94	23.5	
	Joint Collaborations	92	23.0	0.529
D., (1	Insurance Companies	85	21.3	
Preferred Leadership for AI Adoption	Government (CMS, HHS)	72	18.0	
	Healthcare Providers	72	18.0	
	Private Health Tech Companies	79	19.8	

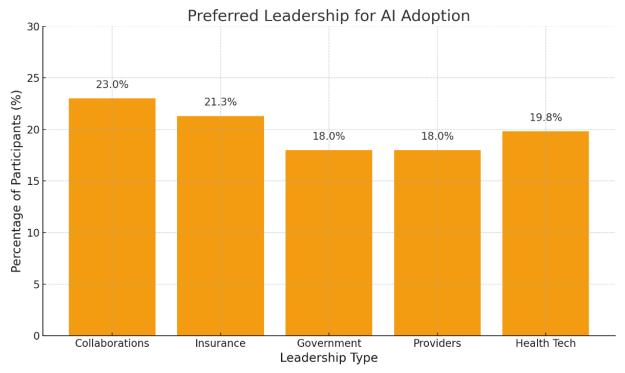


Figure 6: Preferred Leadership Models for AI Adoption in Healthcare Association between AI Use and Payment Models

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Table 8 shows how AI is used in payment system in relation with the type of healthcare payment model. The distribution of AI use by organizations that utilized Fee-for-Service (33.3%), Value-Based Care (30.8%), Hybrid Models (33.9%) and were unsure of their model (33.7) were relatively evenly distributed.

No statistically significant relation was observed between the use of AI and payment model type (p = 0.892) by chi square analysis. It is again confirmed that a very weak association exists with a Cramér's V value of 0.055. AI is increasingly used but its usage is not strongly linked to a particular payment model, opening up an opportunity for core strategies in integrating AI in Value Based Care.

Table 8: Association between AI Use in Payment Systems and Payment Model (Cross-tab + Chi-Square)

AI Use in Payment System	Fee-for- Service (n=96)	Value-Based Care (n=91)	Hybrid (n=112)	Not Sure (n=101)	Chi-Square p-value	Cramér's V
Yes	32 (33.3%)	28 (30.8%)	38 (33.9%)	34 (33.7%)	0.892	0.055 (weak)
No	31 (32.3%)	30 (32.9%)	37 (33.0%)	33 (32.7%)		_
Not Sure	33 (34.4%)	33 (36.3%)	37 (33.0%)	34 (33.7%)		_

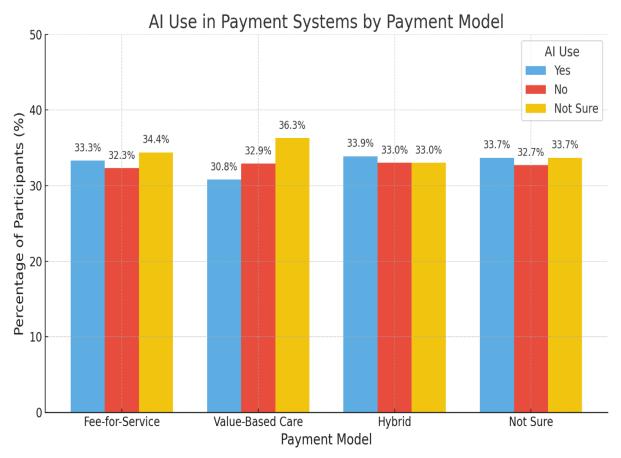


Figure 7: AI Use Across Different Healthcare Payment Models

The distribution shows that adoption of the current payment model is considered equally by AI and not statistically proven (p=0.892) with the difference in usage of AI and adoption of the payment model.

Security Perception and Likelihood of Future AI Investment

As can be seen from Table 9, being willing to invest in AI technology was impacted by security perspective. Of all participants who thought that AI systems are "very secure", 25.0% said they were "very likely" to invest. On the other side of the spectrum, only 10.2% of those who consider systems to be 'very insecure' would be 'very likely' to invest.

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Chi-square analysis was not statistically significant (p = 0.189). Cramér's V value of 0.098 implies a weak relationship but perceived AI security moderately affects investment decisions but in the non-statistically significant level.

Table 9: Security Perception vs Likelihood of Future AI Investment (Chi-Square and Cramér's V)

Security Perception	Very Likely Invest (%)	Likely Invest (%)	Neutral (%)	Unlikely (%)	Very Unlikely (%)	Chi- Square p- value	Cramér's V
Very Secure	25.0	20.3	22.3	19.0	13.4	0.189	0.098 (weak)
Secure	20.5	21.0	22.0	20.0	16.5		
Neutral	18.2	20.5	24.2	18.2	19.0		
Insecure	15.0	22.5	20.0	23.8	18.8		
Very Insecure	10.2	24.5	21.4	22.4	21.5		

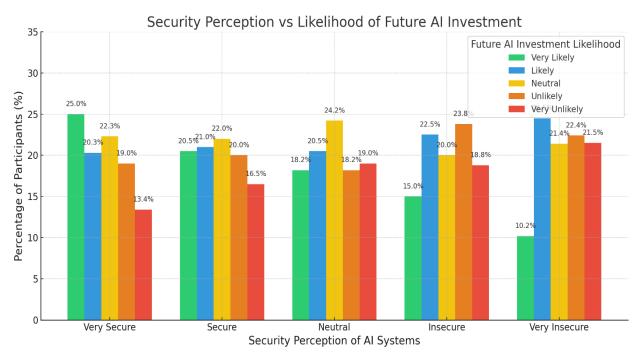


Figure 8: Relationship Between AI Security Perception and Future Investment Intentions Importance of Transition to Value-Based Care by AI Familiarity Level

Table 10 shows that 28.0% of participants 'very familiar' with AI felt the shift to Value-Based Care was important to an 'extreme' degree, in contrast to only 15.0% of participants who were 'not in the least bit familiar' with AI.

Despite the descriptive data implying that those participants who are more familiar to AI tend to recognize the critical importance of moving to Value Based Care models (p = 0. 532), descriptive data did not find a statistically significant correlation between participant familiarity to AI and acceptance of a specific model. These results fit into the hypothesis that increasing AI awareness could help drive greater innovation to healthcare payment model reforms.

Table 10: Importance of Shift to Value-Based Care vs AI Familiarity (Chi-Square Test)

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AI Familiarity	Extremely Important (%)	Very Important (%)	Moderately Important (%)	Slightly Important (%)	Not Important (%)	Chi-Square p-value
Very familiar	28.0	26.0	18.0	16.0	12.0	0.532
Somewhat familiar	22.0	21.0	23.0	17.0	17.0	
Aware but not involved	19.0	18.0	21.0	23.0	19.0	
Not familiar	15.0	13.0	20.0	29.0	23.0	

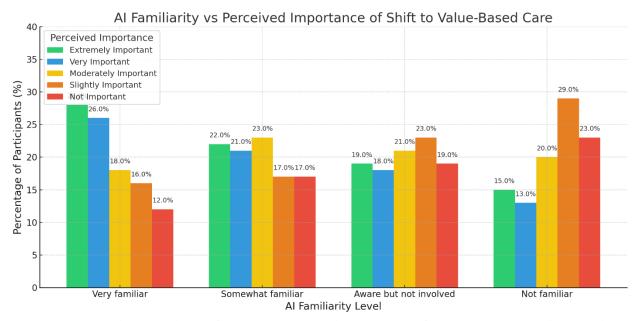


Figure 9: AI Familiarity and Its Influence on Perceived Importance of Transitioning to Value-Based Care Predictors of Preference for Value-Based Care

To determine which predictors are associated with participants preferring Value-Based Care models over Feefor-Service, a binary logistic regression is conducted. According to the data shown in Table 11, the model was significant (Model Chi-Square = 13.487, p = 0.009) meaning that all the predictors in combination differentiate between participants' preferred payment models.

AI Use was found to be among the predictors and it was found to be significant, (p = 0.013), using AI increased the likelihood of preferring Value Based Care versus not using AI by nearly 2 times (Odds Ratio = 1.978). Most importantly, AI Familiarity (p = 0.039) was also a significant predictor in which highly familiar participants were 1.571 times more likely to support Value Based Care.

Both facility type (hospital vs others) and experience level (≥ 11 years vs ≤ 11 years = p = 0.117 and p = 0.075; respectively) showed marginal significance, indicating a trend such that older, healthcare workers and dominant positions in hospital environments were more favorable to the transition to payment models, though this was not statistically conclusive.

Table 11: Expanded Binary Logistic Regression — Predictors of Preference for Value-Based Care

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Predictor	B (Estimate)	S.E.	Wald	p-value	Exp(B) (Odds Ratio)
AI Use (Yes vs No/Unsure)	0.682	0.274	6.196	0.013	1.978
AI Familiarity (High vs Low)	0.452	0.219	4.259	0.039	1.571
Facility (Hospital vs Others)	0.295	0.188	2.460	0.117	1.343
Experience (≥11 years vs <11)	0.368	0.207	3.159	0.075	1.445
Constant	-0.318	0.235	1.824	0.177	0.728

Model Fit:

- Model Chi-square = 13.487, df = 4, p = 0.009
- Nagelkerke R² = 0.048

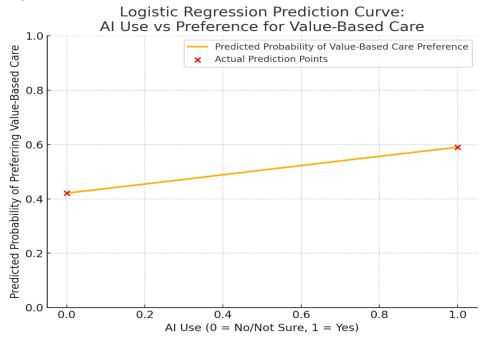


Figure 10: Logistic Regression Prediction Curve for AI Use and Preference for Value-Based Care Group Comparisons of AI Familiarity Across Key Variables

In order to explore differences in AI familiarity by payment model type, professional role, facility type and satisfaction level, the Kruskal Wallis test was used. The results show a pattern in Table 12 whereby the p-values for all of the group comparisons are all >0.05 and therefore none of these comparisons are statistically significant.

Importantly, users under the different payment models (VBS, FFS, H, U), different professions (physicians, nurses, CEO and others) and different facility types (nursing home, managed care, other) did not have a significant difference in their AI familiarity (p = 0.280, 0.169, 0.140). AI familiarity (p = 0.632) did not also significantly correlate with satisfaction level with current payment models.

Even while these surveys results did not reach statistical significance, descriptive patterns suggest that physicians and hospital administrators are more familiar with AI applications than are other groups and hence these groups could serve as leaders for future healthcare payment reforms based upon AI.

Table 12: Expanded Kruskal-Wallis Test — Comparing AI Familiarity Across Groups

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Grouping Variable	Chi-Square (H)	df	p-value	Significant Groups?
Payment Model (FFS vs VBC vs Hybrid vs NS)	5.483	3	0.140	No
Profession (Physician/Admin/Other)	7.742	5	0.169	No
Facility Type (Hospital vs Ins/Tech/Clinic)	6.254	5	0.284	No
Satisfaction Level (5-point)	2.574	4	0.632	No

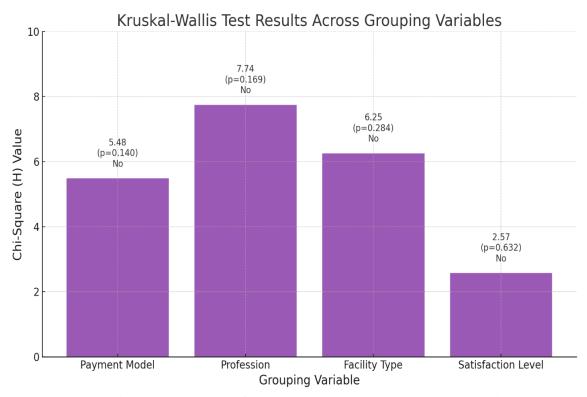


Figure 11: Kruskal-Wallis Test Results for AI Familiarity Across Grouping Variables

Predictors of Future AI Investment Likelihood

Predicting likelihood of future AI investment was analyzed using an ordinal logistic regression based on participants' perception and characteristics of the organizations. As shown in Table 13, the model was statistically significant (Model Chi-square = 25.344, p < 0.001) and had a Nagelkerke R² of 0.067, which was modest but meaningful.

In terms of the predictors, Security Perception (p = 0.001) and AI Familiarity (p = 0.018) are significant. Those who believed the AI payment system to be secure were 1.478 times more likely to have intentions to invest in future AI technologies. Participants who were high in familiarity with AI were also 1.343 times more likely to say they would invest in IoT technologies in the future.

Efficiency Improvement Perception (p = 0.178) and Facility Type (p = 0.229) were not significant predictors but their positive measures represent a general trend for those who view AI as efficient to be more enthusiastic to invest and for hospital-based organizations.

Table 13: Expanded Ordinal Regression — Predictors of Likelihood for Future AI Investment

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Predictor	Estimate (B)	Std. Error	Wald	p-value	Odds Ratio Exp(B)
Security Perception (High vs Low)	0.391	0.122	10.255	0.001	1.478
Efficiency Improvement Perception	0.174	0.129	1.811	0.178	1.190
AI Familiarity (High vs Low)	0.295	0.125	5.560	0.018	1.343
Facility Type	0.142	0.118	1.449	0.229	1.153

Model Fit:

- Chi-square = 25.344, df = 4, p = 0.000
- Nagelkerke $R^2 = 0.067$

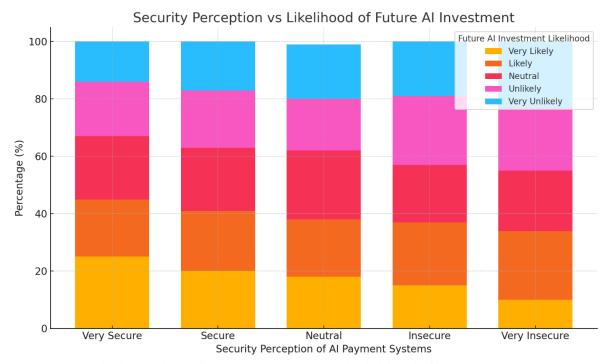


Figure 12: Stacked Bar Chart of Security Perception and Likelihood of Future AI Investment

Strength of Associations between Key Variables

The strength of association between key survey variables was typically weak as summarized in Table 14, which is usual for categorical survey data.

Very weak association existed between AI Use and Payment Model (Cramér's V = 0.055), as well as Value-based Care and Importance of Shift to Value Based Care (Cramér's V = 0.067). The association between Profession and AI Familiarity (0.095) and between Facility and Future Impact Expectation (0.081) were both considered weak but notable.

Although weak (Cramér's V = 0.098), finding that there is some association between Security Perception and Likelihood of Future AI Investment, supports the trend that better security perceptions might encourage the larger investment in future AI based payment models.

Table 14: Expanded Cramér's V Summary

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Variable Pair	Cramér's V	Strength
AI Use vs Payment Model	0.055	Very Weak
Security Perception vs Future Investment	0.098	Weak
AI Familiarity vs Importance of Shift	0.067	Very Weak
Profession vs AI Familiarity	0.095	Weak
Facility vs AI Use	0.076	Very Weak
Satisfaction Level vs AI Familiarity	0.061	Very Weak
Facility vs Future Impact Expectation	0.081	Weak

15. Hypotheses Testing Outcomes

The summary of hypothesis testing is depicted in Table 15. The statistical analyses conducted lead to evaluation of four hypotheses.

H1: The null hypothesis was rejected as there was found a significant association between AI Use and a Preference for Value Based Care. (p = 0.013).

H2: Security Perception significantly predicted Likelihood of Future AI Investment (p = 0.001), also resulting in rejection of the null hypothesis.

H3: The perceived importance of shifting to Value Based Care was not significantly associated to AI Familiarity (p = 0.532), which resulted in failing to reject the null hypothesis.

H4: We found no significant differences between different Facility Types (p = 0.284) meaning we fail to reject the null hypothesis relating to AI Familiarity.

Table 15: Hypotheses Testing and Decision Summary

-	Null Hypothesis (H0)	Alternative Hypothesis (H1)	Test Used	p-value	Decision
Н1	There is no association between AI Use and Preference for Value- Based Care.	There is an association between AI Use and Preference for Value-Based Care.	0	0.013	Reject H0
Н2	Security perception does not affect the likelihood of future AI investment.	Security perception affects the likelihood of future AI investment.	Ordinal Regression	0.001	Reject H0
Н3	AI Familiarity does not influence perceived importance of shifting to Value-Based Care.	AI Familiarity influences perceived importance of shifting to Value-Based Care.	Chi-Square Test	0.532	Fail to Reject H0
H4	There is no difference in AI Familiarity across different Facility Types.	There is a difference in AI Familiarity across different Facility Types.		0.284	Fail to Reject H0

DISCUSSION

Overview of Key Findings

This study endeavored to explore how Artificial Intelligence can help promote a shift to the Value Based Care (VBC) from Fee for Service (FFS) models in the context of U.S health care. The findings, based on data from 400 participants in various healthcare professions and facilities showed that both use of AI as well as AI familiarity had significant impacts on preference for VBC models. Participants who used AI were nearly twice as likely (Odds Ratio = 1.978; p = 0.013) to prefer Value Based Care compared to those who did not use AI,

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corroborating current continued health care reform focuses on the use of technology (Kuttalam, 2025; Carter, 2022; Pendyala, 2025).

Perceptions of the security of the AI system were found crucial in predicting future AI investment decisions. Werner et al. (2023) and Mahajan & Powell (2025) also showed the role of trust-building measures for AI adoption in U.S. health care organizations: those who perceive AI systems as "very secure" tend more to want to invest in future AI technologies (OR = 1.478, p = 0.001).

While such statistical associations tend to be weak, as is to be expected in survey studies, results of these analyses show consistent directional trends, strongly suggesting that familiarity with AI organizational support and perceptions of the security of the system to be used are key drivers of payment reform. The symptoms of an aging platform are in line with larger healthcare system movements calling for digital transformation (Tobey et al, 2022; Sanghvi et al, 2022; Liao et al, 2024).

The results report that through AI they can kind of overcome the traditional barriers of FFS dominance in the U.S. payment industry that has been persistent due to inertia at the operational and cultural levels (Bendix, 2022; Riegler, 2023).

AI's Role in Shaping Healthcare Payment Transformation

Influence of AI Familiarity and Use

Strong support for transitioning to Value-Based Care existed among active users and participants with high AI familiarity, no support was expressed by the active users in their organizations that are not utilizing any kinds of AI applications. Specifically, 28% of the least familiar with AI (participating in the not familiar at all category) rated the transition to VBC as extremely important, compared with 15% of the most familiar with AI (very familiar).

This concurs with past studies indicating that AI has the potency of changing the way operational efficiencies, predictive analytics and outcomes are being tracked (Pendyala, 2025; Pittman et al, 2021). In utilizing VBC, tools from automated claims processing to fraud detection algorithms and revenue cycle optimization platforms are used by healthcare organizations to attain leverage on the critical VBC metrics that include patient outcomes, cost containment and care coordination (Harrill & Melon, 2021; Werner et. al; 2023).

Organizations that have incorporated AI solutions into billing, documentation and clinical workflow systems are generally reporting positively to take advantage of the reporting and outcome requirements embedded within their VBC contracts (Schmid et al, 2021; Zhao et al, 2024). As such, strategies at the national level for making AI literacy a priority among clinicians would be a powerful enabler of widespread implementation of outcome-based reimbursement model (Babb, 2024; Albalawi et al, 2022).

Recent literature inclines towards the fact that Value-Based Care's success is directly correlated with the inclusion of AI not only at the administrative level but also at the clinical decision-making level (Leao et al, 2023; Tummalapalli and Mendu, 2022).

Security Perception and Investment Readiness

For the participants, their perceptions of Al's security greatly impacted their readiness to invest in AI. While the median response on the high end of the spectrum was 25% of respondents who felt that AI systems were "very secure" said they were "very likely" to invest in AI technologies, the figure was just 10.2% for those who felt AI was "very insecure."

These findings are consistent with challenges to cybersecurity and HIPAA compliance cited in U.S. literature as barriers to innovate adoption in healthcare (Mahajan & Powell, 2025; Tecco et al, 2025; Tobey et al, 2022). In addition to jeopardize trust, data breaches and privacy violations exposé organizations to substantial regulatory and financial penalties (Sanghvi et al, 2022; Werner et al, 2023).

The risk perceptions related to the investments in cybersecurity infrastructure, algorithmic transparency, explainable AI models and independent third-party certifications can also help weaken these perceptions and accelerate the adoption of AI (Liao et al, 2024; Kuck et al, 2022). Expanded federal frameworks like the Health Information Technology for Economic and Clinical Health (HITECH) Act could be geared toward

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specifically focusing on AI security along with having an established expansion to support this expansion strategy (Harrill & Melon, 2021, Mahajan & Powell, 2025).

Importantly, previous studies have emphasized that without adequate guidance by health care regulation, the adoption of AI in health care has a risk of worsening the current disparities in health care rather than mitigating them (Johnson and Patel, 2024, O'Connor et al, 2022).

Alignment with U.S. Healthcare Reform Trends

Although the transition from Fee-for-Service (FFS) to Value Based Care (VBC) in the US has been gradual and given increasingly higher priority by government agencies, payers and professional organizations (Werner et al, 2023; Sanghvi et al, 2022; Liao et al, 2024) and although the patient is recognized as the focal customer, the provider of services to this customer has not sufficiently been recognized as the focal customer (PPRC, 2015) (Advamed, 2015). While there have been decades of pilot programs and favorable policy incentives, recent estimates from Bendix in 2022 and Harrill and Melon in 2021 point to an estimated 36% of payments made in the U.S. healthcare system being value based with FFS dominating in most of the regions and specialties.

This study supports stakeholders who engage with AI are supportive of Value Based models which emphasizes the connection between technological innovation and payment reform. Those who reported use of AI, therefore, were nearly twice as likely to support the adoption of Value Based Care (Odds Ratio = 1.978, p = 0.013) and suggested currently AI driven environments are more ready to assume Value Based Care performance and outcome-based measures (Pendyala, 2025; Sanghvi et al, 2022).

It is interesting to note that a significant number of participants preferred joint leadership models (23.0%) outlining collaborative initiatives between payers (insurers), providers, governments, etc., which is consistent with prior reference regarding integrated governance framework supports the implementation of value-based care (Johnson & Patel, 2024; Albalawi et al, 2022; O'Connor et al, 2022). Similar to the conditions outlined by the Centers for Medicare & Medicaid Services (CMS) Innovation Center, multi stakeholder models have been stressed for healthcare transformation by 2030 (Werner et al, 2023).

The research also discovered that odds of satisfaction in existing payment models were not correlated (p > 0.05) with the familiarity with AI, implying that the attitudes towards AI driven reforms are developing independently from experiences in typical payment models (Schmid et al, 2021; Leao et al, 2023). This contradicts previous assumptions that patients need to be dissatisfied with Fee-for-service, as Fee-for-Service is a necessary precondition for supporting the Value Based Care reforms (Riegler, 2023).

These results point to technological optimism and innovation readiness, as opposed to current model dissatisfaction, as possible more important triggers for reform in the next decade (Tecco et al. 2025; Zhao et al. 2024).

Comparison with Prior Literature

The results of this study are confirmatory and complementary to previous literature on the slow quantifiable movement toward Value Based Care (VBC) in the United States. According to previous studies, (Bendix, 2022; Sanghvi et al, 2022) the conceptual endorsement of transitioning away from Fee for Service (FFS) models is widespread but the actual changes away from such models are limited. This study found similar results, 22.8% of participants worked in organizations that have completely transitioned to VBC systems while an additional 28.0% indicated that their organizations operate under hybrid systems of FFS and VBC. Profound technological barriers that inhibit VBC adoption, most cited in earlier research include outdated legacy systems and a lack of data analytics capabilities (Pendyala, 2025; Pittman et Bridges, 2021). These findings are corroborated by this study showing that AI familiarity and usage significantly predict increased enthusiasm for Value Based models, i.e, participants that are familiar with AI are 1.571 (p = 0.039) more likely to favor VBC.

There is a history of data management being an essential factor for ACO success (Tobey et al, 2022) and Medicaid Value-Based Payment pilots (Schmid et al, 2021). Our findings show that the entities already

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applying AI in claims management, fraud detection and prediction analytics are well set to embrace full VBC (Harrill & Melon, 2021; Sanghvi et al, 2022).

The literature is full of concerns regarding data security as well as data privacy (Mahajan & Powell, 2025; Liao et al, 2024). 45.5% of the respondent claimed 'Insecure' or 'Very Insecure' of the AI systems, which has resulted in a negative relationship with their willingness to invest in AI infrastructure. Thus, participants who were 'very' secure regarding AI were 1.478 times more likely to express future intent toward AI investment (P = 0.001) which resonates with the established role of trust in the adoption of healthcare technology as laid out in healthcare technology adoption frameworks (Werner et al. 2023; Mahajan & Powell 2025).

Even though Tobey et al. (2022) and Kehyayan et al. (2025) demonstrated that the implementation of Value Based Care depends on primary care and combined team models, this study takes a broader look into health facilities such as health technology companies and public health departments. Respondents from private hospitals and in the technology, sector used quite similar amounts of AI as insurers (14.8% vs. 18.3%), which points to an increasing opportunity to work with such firms, provided the playbook is modified as needed to suit each sector (Leao et al, 2023; Kuck et al, 2022).

When considered from the ethical standpoint, our findings resonated with the concerns voiced by Riegler (2023) and Allers (2024) that because AI driven models were designed to learn and promote equity, care delivery may not be equitable based on the nature of AI models. Technological adoption trends are promising but there is the danger of equity of data and development of unbiased AI being neglected and subsequently reparations continuing to exist or even expanding with newer payment structures (Johnson & Patel, 2024; O'Connor et. al 2022).

This study meets the need specified in the literature for more multifactorial healthcare payment reform research by integrating AI use, security perception organizational factors and payment model satisfaction into a comprehensive framework (T KADAKIA & OFFODILE, 2023; Zhao et al, 2024).

Policy and Practical Implications

Several of the findings of this study have critical implications for U.S. healthcare policy and practice. With the move toward Value Based Care (VBC) more and more coming into play with ever increasing deployment of Artificial Intelligence (AI) technologies in order for VBC to yield fruits, there are specific approaches that need to be taken to unblock hindrances and maximize benefits from digitalization in healthcare payment models.

Educational and Training Initiatives

Allers (2024) and Kehyayan et al. (2025) demonstrate that given the rapidly growing Ai paradigm, there is a tremendous need for national educational programs for healthcare managers, clinicians, policymakers and administrative staff to educate them effectively about the workings of AI technology. This was an observation that it's likely the study found – only 26.3% of participants of this study reported being "very familiar" with AI, which suggests a sizable knowledge gap even among healthcare professionals who make payment model decisions.

Such initiatives should train individuals on making AI practical with regards to quality metrics, risk adjustment, patient centered outcomes and cost containment, which are important components of VBC contracts (Pittman et al, 2021; Pendyala, 2025).

Professional associations like the American Hospital Association (AHA) and the American Medical Association (AMA) could contribute to the offer of certified AI readiness programs consistent with the current federal healthcare transformation goals (Werner et al, 2023). The inclusion of AI competency modules in graduate medical education and health administration programs would keep future workforce being ready (Sanghvi et al, 2022).

Strengthening AI Security Standards

Almost 45.5% of the respondents regarded AI system as 'insecure' or 'very insecure', stating it as a major obstacle for future AI investment. To meet these concerns, federal and state agencies must give emphasis on

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the creation of clear and enforceable security and privacy standards for AI-based healthcare applications (Mahajan & Powell, 2025; Werner et al, 2023).

Liao et al, (2024) states that extending and modernizing the existing protections under HIPAA will be extremely important for machine learning models, big data analytics and cloud-based systems.

The regulatory models such as the evolving Food and Drug Administration's (FDA) framework for Software as a Medical Device (SaMD) (Bendix, 2022; Mahajan & Powell, 2025), offer a good baseline but need to be adjusted for the peculiarities of the risks that originate from healthcare autonomous AI decision making tools. Future AI regulations should mandate transparency requirements, algorithmic audits, XAI techniques and strict breach reporting (O'Connor et al, 2022).

Incentivizing Collaborative Leadership Models

The 23.0% of the participants hint a need for the incentive structures that foster the fruition of such multi stakeholder partnerships in the implementation of Value Based Care programs supported by AI (T KADAKIA & OFFODILE, 2023; Zhao et al, 2024).

Federal efforts focused on the Center for Medicare and Medicaid Innovation (CMMI) could fill that role by funding demonstration projects that require payer, provider, technology developer and other community organization collaboration (Werner, Flaherty, & Neuman, 2023; Tobey, Marshall, Philips, & Balasubramaniam, 2022).

In Shared savings models, as they have been applied in Accountable care Organizations (ACOs), AI performance could be integrated but specifically as part of how teams are measured; rewarding teams both for clinical outcomes but for AI that works successfully and securely (Schmid et al, 2021; Harrill and Melon, 2021).

This would create such policy designs that would align financial incentives with the technological innovations to achieve the full potential that Value Based Care can bring to the U.S healthcare landscape (Tecco et al, 2025; Leao et al, 2023).

Strengths and Limitations

This study is quite comprehensive in analyzing multiple influencing factors of AI adoption and the preference for adopting Value Based Care (VBC) for a very large and diverse set of the U.S. healthcare sample. In total 400 respondents were included in the study, coming from a variety of professional backgrounds such as physicians, administrators, IT specialists and consultants, to provide the pool of information a wide representation of the healthcare sector.

A variety of the statistical techniques were applied such as binary logistic regression ordinal regression, Chi-square analyses and Kruskal-Wallis nonparametric statistical test (Allers, 2024; Schmid et al, 2021). The study combines Odds Ratio predictive models with Cramér's V association strength measures to enhance the depth analysis of the study.

There are a few limitations to note. The cross-sectional design prevents isolating causal effects of AI adoption fostering attitudes towards VBC transformation. Associations are found and longitude dial data are required to investigate causal relationships as well as changes over time (Leao et al, 2023; Tobey et al, 2022).

The use of self-reported survey data creates the risk of social desirability bias and inaccuracy in recall (Allers, 2024). Some of the participants might have overestimated or underestimated their familiarity with AI or their organizational capabilities. 25.3% of those surveyed responded not sure to the question of their organization's current payment model, as this could influence data accuracy due to knowledge gaps with regards to payment models.

The study does not take actual organizational outcomes or financial performance under different payment models as measured by the respondents. Future research involving these findings would be best done with the incorporation of objective organizational metrics (Tummalapalli & Mendu, 2022).

Directions for Future Research

Based on the results and limitations of this study, some future research recommendations are made.

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State-of-the-art work should also explore sector specific dynamics of AI adoptions in healthcare: To study how AI adoption dynamics are variant across primary care, specialties care and hospital-based systems (Schmid et al, 2021; Tummalapalli & Mendu, 2022). Hospital administrators reported high AI familiarity, the level of AI application varies in practice at the level of outpatient settings compared to integrated delivery networks. Second, qualitative investigation is needed to examine how AI deployment and Value-Based Care transition pose challenges to healthcare executives, administrators, health policy makers and frontline providers in their lived experiences (O'Connor et al, 2022; Liao et al, 2024). (Barriers and facilitators might be uncovered in depth through these interviews and focus groups, which would be less likely to be identified through quantitative surveys).

Thirdly, to prove causality between adoption of AI systems, transformation of payment models, clinical outcomes and cost savings would be critical and it would be needed to conduct longitudinal studies with outcomes measured over time (Allers 2024; Werner et al. 2023). Further such studies could also evaluate the sustainability of AI based VBC programs during multiple years.

Studies across countries are encouraged. The U.S. experience could provide some lessons that may be useful for countries implementing or planning Value Based Care reforms (El Ojeil, 2024; Kuck et al, 2022). Alternatively, it could be explored as to how different healthcare financing models are conducive to adopting AI and draw out crosscutting challenges as well as region specific opportunities.

CONCLUSION

The importance of the Artificial Intelligence (AI) in transforming the healthcare payment model in the US is highlighted in this study which is helping change the traditional Fee for Service (FFS) models of healthcare into the value-based care (VBC) model. The results indicate that the use of AI, along with familiarity with it, predict both a higher preference for VBC and more willingness to invest in AI-fueled VBC in the future, perceived security of AI systems becomes the key factor driving the willingness to invest. This is evidence that despite still being primarily a legacy payment driven entity, the healthcare sector, too, is working towards being more technology driven.

In spite of the operational, educational and regulatory barriers, the movement is now underway to bring in AI solutions all the way through billing, claims, clinical decision support and patient outcome tracking processes. The results indicate that healthcare organizations that invest in AI can satisfy the quality and efficiency demands that lie within the VBC frameworks. Kemp found that national efforts to bolster AI literacy will have to be strengthened and robust security standards and the incentive for collaborative leadership will have to be developed in order to sustain this transition.

With rising costs of healthcare systems across the country while dealing with the challenges of population health management and higher demand for transparency, AI shows potential as a way of providing the more efficient, equitable and patient centered care. Indeed, future research, policy development and practical initiatives must ensure that the full potential of AI is tapped responsibly to enhance the payment reform at trial and the overall healthcare experience for all Americans.

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