Study on Clinician Acceptance & AI Integration – Codebook exported from NVivo

Codes

Theme/Description	***Subtheme*** Code Label	**Sources**	**References**
1. General AI adoption perceptions (General perceptions of AI and related developments in relation to health- and cancer care)		13	31
	AI applications (for reference-intro)	9	16
	AI for communication with patient	1	1
	AI for consolidating data	1	1
	AI in pathology for biopsy and genetics exams	1	1
	AI tool for prostate cancer	1	1
	AI tool use in surgery for suturing	1	1
	AI-based image diagnosis tools	2	2
	areas for which AI tools can help	1	1
	LLMs for analyzing gene sets	1	1
	pancreatic cancer scanners with AI possibly	1	1
	other relevant AI applications	1	3
	solutions under consideration	1	1
	speech recognition for taking journal notes	2	2
	AI developments	8	10
	developments have been slower than initially expected	3	3
	expects upgrades will result in less mistakes	1	1
	fast moving field	1	1
	healthcare should take a more proactive focus	1	2
	part of societal development	1	1
	surprised at the limited use	1	1
	upcoming uses including LLMs	1	1
	Limitations and complexity	3	5
	complexity of AI in healthcare	2	2

	concern about future impact of AI	1	1
	uncertainty about the so-called-promise of AI	1	1
	what competition promotes is not always correct	1	1
2. Social system – organization (Perceptions about organizational level factors influencing AI adoption)		10	28
	Facilitating factors at the organization level	9	14
	communicating with teams	3	3
	informal social discussions on AI	2	2
	prep work before implementation	4	4
	tech-savvy group, probably more willingness	4	5
	Organization-specific challenges to adoption	5	14
	challenges related to infrastructure and upgrades	1	1
	cumbersome process	1	4
	organizational guidance	1	1
	user buy-in	4	8
3. Social system – people **(**Perceptions about human and social factors that influence AI acceptance and use, as well as the broader impact of AI use on clinical practice and the workforce)		18	140
	Age-related perceptions	3	3
	acceptance not correlated to age	1	1
	age specific difference in attitude	1	1
	younger professionals expected to know more	1	1
	Attitudes towards AI	12	22
	Negative attitudes towards AI	4	4
	Indifference	1	1
	negative because they felt were not informed	1	1
	skepticism overcome by AI performance	2	2
	Positive attitudes towards AI	9	18
	embracing AI as a helper	1	1
	generally satisfied	5	8
	less negative feedback than expected	1	1
	positive attitude also increased by AI for personal use	2	2
	positive attitudes driven by perceived benefit	3	4
	positive with a critical eye	1	1
	radiologists generally more positive	1	1
	Automation bias	4	5
	reviewer bias alignment with AI tool results	2	2
	physicians must check before approving	1	2

	younger drs believe AI results more, less scrutiny	1	1
	Clinician autonomy, behavioral impact, interpersonal factors	7	13
	concern that doctors lose their help from admin	1	1
	Dependency after continuous use	3	4
	fears associated with AI use	3	5
	human bias and error when AI is assumed to be wrong	1	1
	loss of control	2	2
	Effect on jobs, skills, and competencies	15	41
	Effect on jobs	7	14
	AI can take over mediocre jobs and tasks	1	1
	fear of job loss – admin	1	1
	great when supervised	1	1
	human involvement remains necessary	5	7
	impact on jobs will be evident several years from now	2	4
	Skills and competencies	14	27
	changes in medical training	3	3
	example of how skills weaken	1	1
	impact on younger generation of clinicians	2	2
	shift in responsibilities, need to reapply minds	3	5
	solutions for maintaining skills	3	4
	threat to epistemic knowledge	1	1
	training prior to AI tool use	10	11
	Involvement in shaping the solution	12	23
	desired design changes	2	2
	evaluation protocol incl drs opinions	1	1
	feedback and adaptation	4	7
	HCPs should be involved in design	4	4
	involvement during development	3	4
	no involvement in design	1	2
	no need to involve HCP in design	1	1
	Possibility of involvement in design is unclear	1	1
	user involvement through demonstrations	1	1
	Need for AI Awareness	9	12
	lack of awareness	2	2

	Misconceptions	3	5
	need to be alert to potential AI errors	3	4
	need to understand AI tools to use them correctly	1	1
	Responsibility-Accountability	9	11
	dr is always responsible	6	7
	question of responsibility	3	3
	responsibility of developer to make sure it works	1	1
	Trust	7	10
	issue of trustworthiness	2	3
	reliance more on experience than AI	1	1
	successful evaluation linked to increased trust	1	1
	trust based on certification and approval	1	1
	trust based on exposure and experience	1	2
	why should AI be treated differently to other tech	1	1
	would rather trust well-respected clinicians	1	1
4. Technical (AI) system (Perceptions of AI tools)		18	90
	AI potential	10	23
	AI can be helpful for patients	2	3
	AI can help clinicians stay up to date	1	1
	can speed up research to implementation	1	1
	functional limitations	2	2
	streamline care, relieve strained resources	8	16
	Challenges relating to data	7	8
	concern for data privacy & security	5	6
	concern for propagating bias	1	1
	concern if humans capture data correctly	1	1
	Ease of use	7	14
	availability of support	5	6
	easy to use	4	5
	error recovery	1	1
	little slow at first, bit more work	2	2
	Effects of AI tools on workflows	9	20
	AI adaptation to suit workflow needs	1	1
	aids for workflow integration	1	1
	change in workflow	7	14

	Different types of AI solutions have different impact on workflow	1	1
	Modes of AI integration	3	3
	Fit-for-task design	5	5
	be specific to a given use case	3	3
	main goals warranting AI use	2	2
	Interpretability and explainability of AI tools	9	13
	interpretability benefits clinicians	1	3
	Lack of interpretability causes uncertainty and future concern	1	1
	need for explainability-interpretability	2	2
	need for interpretability is conditional	2	2
	tool is not interpretable, but not needed	4	4
	trade-off between accuracy and explainable	1	1
	Unsuccessful AI efforts	3	7
	custom-made systems offer minimal gains	1	2
	failed AI example (commercial product)	1	1
	failed AI example (in-house)	1	1
	Model robustness	1	3
5. Impacts of AI integration as indicators of joint optimization **(**Reflects the perceived outcomes following the integration into clinical workflows**)**		15	70
	Benefits to clinical practice	14	40
	increased accuracy and reliability	4	4
	increases confidence in drs	1	1
	increasing efficiency, effectiveness	6	12
	potential to reduce the need for MDTs	1	1
	saved money (in terms of salaries)	1	1
	workload reduction and time saving	10	20
	Clinical benefits	8	16
	better cancer detection	2	3
	better structures	1	1
	patient benefits from better treatment	3	4
	reduce perception errors	2	2
	reduced variation	3	3
	Continuity	8	14
	consistent performance	2	2

	continuous validation	3	3
	decision to change solution or not	4	4
	drivers for considering change	2	4
	expectation that solution will evolve rather than discontinued	1	1
6. External System - Environmental factors **(**Addresses perceptions about the environment and its potential influence on AI adoption and integration efforts**)**		13	19
	AI and clinical guidelines	7	9
	AI can help with analyzing mega trials for guideline development	1	1
	AI should be optimized to follow guidelines without compromising AI benefits	1	1
	AI today is much inferior compared to expert committees regarding clinical guidelines	2	2
	guidelines should acknowledge AI use	2	2
	manufacturers' alignment with guidelines	2	3
	Macro-level enablers	4	4
	centralized healthcare systems make AI implementation easier	1	1
	cooperation between regions	3	3
	Manufacturer stability	1	1
	Regulatory influence	4	5
	a challenge to regulate AI in medicine	1	1
	AI developments constrained by regulations	1	1
	legal barriers to AI use in clinical practice	1	1
	unclear guidelines are problematic	1	2

*Note that the aggregated source count for each theme reflects unique sources. As sources can contribute to multiple codes, the sum of the code-specific counts can exceed the theme's source total