

Table 1

Summary of Included Studies on EHR Workarounds and Their Impact on Workflow and Patient Safety

Author, Year	Study Design	Setting / Population	Focus Area	Type of Workarounds Identified	Key Findings / Impact
Beerepoot et al., 2021	Mixed-methods	Nurses	Detection of workarounds	Observable behavioural deviations	Identified patterns useful for monitoring systems
Bianchi & Ghirotto, 2022	Qualitative (phenomenological)	Nurses	Behavioural perspectives	Informal clinical adjustments	Workarounds reflect adaptive coping strategies
Blijleven et al., 2022	Qualitative / Framework development	Healthcare systems / EHR users	Sociotechnical analysis of EHR workarounds	Internal and external workarounds (e.g., alert overrides, parallel documentation, workflow deviations)	Developed the SEWA (Sociotechnical EHR Workaround Analysis) framework; identified underlying rationales for workarounds and highlighted their impact on workflow efficiency, system usability, and patient safety
Blijleven et al., 2017	Mixed-methods	Multi-setting healthcare	EHR usability	Alert overrides, data entry changes	Workarounds affect efficiency, safety, and care quality
Boonstra et al., 2021	Mixed-methods	Healthcare organizations	Risks & benefits	Alert overrides, informal processes	Workarounds linked to safety risks and efficiency gains
Carayon et al., 2015	Conceptual / Systems analysis	Healthcare systems	Human factors & safety	Workflow adaptations	Highlighted socio-technical factors influencing safety and system use
Debono et al., 2013	Scoping review	Acute care nurses	Workaround behaviour	Policy bypass, informal processes	Workarounds often compensate for system inefficiencies
Fraczkowski et al., 2020	Integrative review	Nursing practice	Workflow adaptation	Informal communication, documentation changes	Workarounds support workflow but risk data integrity
Gephart et al., 2015	Systematic review	Nursing practice	Unintended consequences	Documentation deviations	EHR use linked to unintended workflow disruptions

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Holmes et al., 2021	Analytical review	Clinical & research settings	System limitations	Workarounds due to system complexity	EHR challenges drive inefficiencies and adaptations
Lee & Lee, 2021	Observational study	Tertiary hospital nurses	EMR use	Bypassing system steps	High prevalence in complex clinical settings
Lopez et al., 2021	Longitudinal observational	Providers & nurses	Usability & workload	Parallel documentation, shortcuts	Increased workload linked to workaround development
McCord et al., 2022	Systematic review	Nursing practice	Workaround classification	Multiple categories (internal/external)	Identified triggers: workflow, policy, system gaps
Moy et al., 2023	Observational	Emergency departments	Documentation burden	Workflow shortcuts	EHR burden contributes to workflow fragmentation
Persson & Rydenfält, 2021	Theoretical analysis	Digital healthcare systems	System design	Structural workflow modifications	Poor system design drives workaround behaviour
Tolentino & Gephart, 2021	Systematic review	Nurses	User experience	Interface navigation adaptations	Poor UX contributes to workaround adoption
Zheng et al., 2020	Observational / Review	Healthcare providers	Workflow & EHR interaction	Task-level workflow deviations	Identified workflow misalignment as key driver of workarounds