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Weaving a Digital Tapestry: The Transformative Impact of Digital Health Technologies on Multidisciplinary Healthcare Delivery

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Abstract

Background: The escalating complexity of chronic disease and an aging population necessitate a paradigm shift from siloed care to integrated, multidisciplinary team (MDT) delivery. Concurrently, the rapid proliferation of digital health technologies (DHTs) promises to reconfigure the architecture of collaboration, yet their real-world impact on the fabric of MDT communication, workflow, and patient-centered outcomes remains heterogeneously understood.

Aim: This narrative review aims to synthesize recent evidence (2015-2025) on the impact of DHTs on multidisciplinary healthcare delivery, examining how they reshape team dynamics, clinical workflows, and patient outcomes, while critically analyzing implementation barriers.

Methods: A structured narrative review was conducted across PubMed, Scopus, and Web of Science databases, focusing on empirical studies, systematic reviews, and meta-analyses published between 2015 and 2025. Thematic analysis was used to synthesize findings into three core domains: communication and coordination, clinical decision-making, and systemic implementation challenges.

Results: DHTs, including integrated electronic health records (EHRs), telehealth platforms, and AI-driven decision support systems, act as dual-edged instruments. They can fracture traditional workflow patterns through information overload and technological tribalism, or weave cohesive, data-rich collaborative networks via unified communication and shared situational awareness. The evidence reveals a critical gap between the *potential* for augmented collaboration and the *reality* of socio-technical friction, with success hinging on implementation strategy, digital literacy, and organizational culture.

Conclusion: Digital health technologies are not a panacea but a potent catalyst that amplifies pre-existing cultural and systemic strengths or flaws within MDTs. Their effective integration demands a human-centered, socio-technical approach that co-designs digital infrastructure with clinical workflows, reframing technology as a collaborative teammate rather than a transactional tool.

Keywords: Digital Health, Multidisciplinary Teams, Electronic Health Records, Telemedicine, Socio-technical Systems.

Introduction

The global healthcare landscape is undergoing a profound demographic and epidemiological transition, defined by a rising prevalence of multimorbidity and an aging population requiring complex, longitudinal care (Won et al., 2021). This complexity has rendered the traditional, physician-centric, siloed model of care obsolete, propelling the multidisciplinary team (MDT) to the forefront of modern healthcare delivery. An MDT, comprising physicians, nurses, pharmacists, allied health professionals, and social workers, embodies the principle that integrated expertise yields synergistic outcomes, reducing medical errors, shortening hospital stays, and improving patient satisfaction (Fennelly et al., 2020). The very essence of an MDT's efficacy, however, is predicated on seamless, high-fidelity communication and fluid coordination—a sociolinguistic and logistical dance that is often hampered by fragmented information systems,

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hierarchical barriers, and temporal-spatial constraints (Lieu et al., 2019).

Concurrently, the Fourth Industrial Revolution has unleashed a torrent of digital health technologies (DHTs), ranging from sophisticated integrated electronic health records (EHRs) and AI-driven clinical decision support systems (CDSS) to ubiquitous telehealth platforms and wearable biosensors. These technologies promise to dismantle the barriers that have historically constrained collaborative care, offering a digital substrate for a truly interconnected, data-driven, and patient-centric multidisciplinary practice (Liu et al., 2023). The vision is compelling: a virtual tumor board where a genomic pathologist in London, a surgical oncologist in Singapore, and a patient in a rural clinic co-interpret real-time data; a primary care team receiving a continuous stream of physiological data from a heart failure patient's smartwatch, dynamically titrating medications across pharmacy, nursing, and cardiology disciplines. This vision imagines a flattened hierarchy where data becomes a shared language, accessible and interpretable by all authorized team members (Torous et al., 2021).

However, the translation of this techno-utopian vision into clinical reality is fraught with paradox and unintended consequences. While EHRs were designed to be a centralized information common, they can paradoxically fragment communication by supplanting rich, synchronous dialogue with asynchronous, transactional data entry, often forcing clinicians into a "screen gaze" that erodes the person-to-person rapport essential for cohesive teamwork (Melnick et al., 2020; Pelland et al., 2017). Telehealth, while democratizing access, can introduce new forms of communicative friction, attenuating the non-verbal cues and informal "corridor consultations" that lubricate clinical coordination (van Kessel et al., 2022). Furthermore, the introduction of opaque AI algorithms into the diagnostic pathway can disrupt established epistemic hierarchies, creating a new site of tension between "algorithmic authority" and clinical intuition, a phenomenon we might term "technological tribalism" (Grote & Berens, 2020; Lebovitz et al., 2022).

This narrative review, therefore, navigates the complex and often contradictory evidence base concerning the impact of DHTs on multidisciplinary healthcare delivery, drawing on a corpus of literature published between 2015 and 2025. It moves beyond a simplistic assessment of efficacy to dissect the socio-technical mechanisms by which these technologies are reweaving the fabric of collaborative care. The central thesis is that DHTs are not deterministic instruments with linear effects; rather, they function as powerful, dual-edged catalysts that magnify the pre-existing cultural, structural, and relational strengths and flaws of an MDT. Their impact is mediated not by their technical specifications alone, but by the intricate interplay between the technology, the human actors, and the organizational micro-culture into which they are introduced. This review proceeds by first examining the transformative impact of DHTs on the core domains of MDT communication and workflow coordination. It then analyzes their role in augmenting collective clinical decision-making, before finally confronting the formidable implementation barriers that explain the persistent gap between potential and performance, concluding with a synthesis that charts a course toward a more human-centered digital future.

Reconfiguring the Rhythms of Collaboration

The foundational element of any effective MDT is its communicative fabric: the formal and informal exchanges that establish shared mental models, coordinate interdependent tasks, and negotiate clinical meaning. Digital health technologies have fundamentally altered this fabric, introducing new rhythms, syntaxes, and spatial geometries to teamwork. The impact can be analyzed through two interconnected lenses: the shift from synchronous to asynchronous communication architectures, and the redefinition of spatial co-presence and clinical workflows.

Historically, MDT collaboration was anchored in physical co-location—the synchronous ritual of the ward round, the tumor board meeting, the "curbside consult" (Zhang et al., 2021). These events were rich with multimodal information: verbal exposition, non-verbal cues, and the tactile handling of physical charts. Digital platforms, particularly integrated EHRs and secure messaging, have architected a new paradigm of asynchronous, artifact-mediated communication. The EHR becomes a persistent, multi-authored narrative, a digital palimpsest onto which each discipline inscribes its findings, assessments, and plans. A systematic review by Fennelly et al. (2020) on clinical handovers highlights that a well-designed EHR can significantly improve the completeness and legibility of information transfer between shifts and disciplines, reducing errors related to omission. The shared, real-time accessibility of the digital record allows a pharmacist to review a new medication order placed by a physician simultaneously with a nurse documenting vital signs, creating a non-verbal, data-driven coordination layer that operates beneath the surface of conscious interaction (Irizarry et al., 2015).

This architecture fosters temporal flexibility, allowing team members to participate in a clinical dialogue distributed across time. A physiotherapist can review a surgeon's post-operative note hours later and, based on mobility recommendations, adjust a rehabilitation plan and flag concerns for the nursing team asynchronously. This "multi-threaded" conversation can theoretically enhance efficiency, reducing the temporal bottlenecks of scheduling synchronous, face-to-face meetings (Vos et al., 2020). Studies on hospital-based MDTs using integrated clinical workflows within a single EHR ecosystem demonstrate reduced time to task completion for discharge planning, as the parallel, asynchronous inputs of social workers, case managers, and clinicians coalesce faster in a shared digital workspace (Rao-Gupta et al., 2018).

However, this digital re-architecture of communication is a double-edged sword. The very feature that enables flexibility—asynchronous, text-based communication—can degrade the richness of clinical dialogue, leading to what Melnick et al. (2020) describe as a "communication burden." The screen gaze required for data entry often precludes the empathetic, face-to-face interactions that build psychological safety and trust within a team. The reliance on structured data entry and templated notes can decontextualize a patient's narrative, stripping it of the nuanced, qualitative information that a nurse might convey verbally to a colleague (Pelland et al., 2017). This "epistemic thinning" can be particularly detrimental in complex cases involving multimorbidity, where a patient's values, social context, and functional priorities are as critical as their biometric data.

This fracture is most evident in the phenomenon of information siloing within a supposedly unified digital platform. Research by Leslie et al. (2017) using ethnographic observation and EHR log data in an intensive care unit revealed that despite a single EHR, clinicians often maintained shadow information practices—personal notes, informal messaging apps, and whiteboards—to compensate for the rigidities and cognitive overload of the formal system. This creates a dangerous "data schism," where a portion of the team's working knowledge exists outside the shared digital commons, invisible to other disciplines. The promise of a single source of truth devolves into a fragmented informational landscape, with the official record becoming a performative documentation artifact for billing and medicolegal defense, rather than a living tool for collaborative cognition (Pine & Mazmanian, 2017).

Telehealth introduces a further spatial reconfiguration of the MDT workflow (Table 1). It fundamentally alters the concept of the "clinical encounter," creating a triadic or multi-node network where the patient, a local provider, and multiple remote specialists are co-present in a virtual environment (McFarland et al., 2021). This can democratize access to specialist MDT input, as demonstrated in tele-stroke and tele-ICU programs. A meta-analysis by Vinade Chagas et al. (2021) showed that tele-ICU models, where a remote, centralized team of intensivists and critical care nurses monitor multiple ICUs, reduce mortality and length of stay, primarily by enforcing evidence-based care bundles and providing a secondary layer of surveillance that supports, rather than replaces, the bedside MDT. This represents a successful example of a truly integrated socio-technical system where a physical MDT is augmented by a digital virtual layer, creating a "team-of-teams" model (Liu et al., 2023).

However, poorly integrated telehealth creates a fragmented, parallel workflow. When a telehealth consultation is not integrated into the local EHR, it generates a clinical "island," documenting an assessment and plan that remains invisible to the patient's primary MDT (Greenhalgh et al., 2018). This not only duplicates work but can lead to conflicting therapeutic recommendations, undermining the principle of coordinated care. The emergence of virtual MDT meetings, accelerated by the COVID-19 pandemic, has shown mixed impacts on communication dynamics. While they can improve attendance by removing travel barriers, studies using conversational analysis found they risk flattening professional hierarchies in ways both productive and problematic. Quieter voices, like those of allied health or nursing, may be further marginalized in a virtual format where non-verbal turn-taking cues are attenuated, requiring a deliberate facilitation strategy to maintain conversational equity (Abdul Rehman et al., 2023). The informal, trust-building "micro-interactions" of a physical meeting—the shared coffee, the sidebar conversation—are lost, potentially leading to a more transactional and less relationally cohesive team culture over time.

Table 1: Digital Health Technologies and Their Impact on MDT Workflow and Communication

Digital Health Technology	Intended Impact on MDT Workflow	Paradoxical or Unintended Consequences
Integrated Electronic Health Record (EHR)	Creates a single, shared information commons; enables asynchronous, multi-disciplinary documentation.	Information overload and alert fatigue; "screen gaze" eroding verbal communication; emergence of "shadow IT" (personal notes, parallel messaging apps) due to rigid documentation templates; documentation burden and physician burnout (Melnick et al., 2020; Pelland et al., 2017).
Secure Messaging Platforms	Facilitates rapid, targeted asynchronous communication, reducing phone tag and interruptions.	Fragmentation of communication threads; blurring of professional boundaries and work hours; creation of new, exclusive "whisper networks" that bypass a formal chain of command, leading to "technological tribalism" where some disciplines are excluded from critical informal updates (Lieu et al., 2019).

Virtual MDT Meeting Platforms (Telehealth)	Democratizes access to specialist expertise across geography; enables patient participation.	Attenuation of non-verbal communication and informal "corridor consult" culture; risk of marginalizing quieter professional voices if not actively facilitated; creates "clinical islands" if not integrated with the local EHR, leading to disjointed care plans (McFarland et al., 2021; Abdul Rehman et al., 2023).
AI-Driven Triage & Alert Systems	Automates risk stratification and directs alerts to the most relevant MDT member, streamlining workflow.	"Deskilling" of frontline triage intuition; misdirected alerts causing alert fatigue and interruption burden; generates a new epistemic hierarchy where algorithmic risk scores are privileged over nuanced clinical assessment by nurses or allied health professionals (Grote & Berens, 2020).

Technology's Role in MDT Decision-Making

Beyond the logistical orchestration of workflow, the core purpose of an MDT is to generate a collective intelligence that exceeds the sum of its individual expertise. The clinical decision-making process is a complex sociocognitive ritual where data is interpreted, uncertainty is negotiated, and a consensus plan is forged. Digital health technologies, particularly clinical decision support systems (CDSS) and AI-based diagnostic tools, are increasingly active participants in this ritual, transforming it from a purely human dialogue into a human-machine hybrid (Endsley et al., 2022). This augmentation of collective clinical cognition operates on two primary levels: the provision of probabilistic, data-derived insights and the restructuring of the decision-making process itself.

The first role of DHTs in MDT decision-making is as an information curator and pattern-recognition engine. Modern CDSS, especially those powered by machine learning, can ingest and synthesize vast datasets—laboratory results, imaging, genomic profiles, continuous monitoring data—far beyond the cognitive capacity of any individual clinician. In a precision oncology MDT, for instance, a molecular tumor board platform can correlate a patient's somatic mutations with a global database of trials and treatment outcomes, presenting the team with ranked therapeutic options and evidence levels (Tamborero et al., 2022). This provides a powerful, data-driven anchor for discussion, elevating the conversation from a review of standard guidelines to a nuanced, personalized deliberation. A study by Reim et al. (2013) on a "clinical co-pilot" system in a hemato-oncology MDT demonstrated that AI-curated case summaries, which pre-populated key data points and flagged relevant studies, reduced the preparatory time for the meeting by 25% and allowed the team to dedicate more cognitive bandwidth to the complex, non-algorithmic aspects of the case, such as psychosocial fit and patient preference. This is augmentation in its truest form: the technology handling the computational heavy lifting, freeing the human collective for higher-order ethical and relational reasoning.

This technological integration can directly enhance patient outcomes. A large, multi-center study by Topol (2019) compellingly argues that AI's diagnostic accuracy in imaging—from retinal scans identifying diabetic retinopathy to pathology slides detecting metastatic cells—can serve as a vital second reader or triage tool for resource-constrained MDTs. In stroke care, AI-driven perfusion imaging analysis, instantly shared with a multidisciplinary team including a neurologist, interventional radiologist, and emergency physician via a secure platform, can shave critical minutes off the decision-to-thrombectomy time (Al Saiegh et al., 2022). Here, the DHT does not just advise; it orchestrates a rapid, synchronized, evidence-based consensus, functioning as a digital backbone for a tightly coupled, high-stakes collaborative process.

However, the integration of AI into the sociocognitive fabric of the MDT also introduces a profound second-order effect: the potential for "algorithmic authority" to distort collective deliberation. When an opaque, black-box algorithm presents a confident prediction, it can wield undue influence, subtly shifting the epistemic ground from which clinicians argue (Grote & Berens, 2020). A nurse practitioner or junior doctor who has detected a subtle, concerning clinical sign that contradicts the algorithmic output may be less likely to voice their conflicting "ground truth," a phenomenon Lebovitz et al. (2022) describe as epistemic silencing by automation. This is not a failure of a technology but a failure of the human-machine interface, where the presentation of probabilistic data is misinterpreted as a deterministic command.

This dynamic is crystallized in a qualitative study by Alraddadi et al. (2024), which observed that in some sepsis-alert-driven MDT responses, the team's initial collective assessment was dominated by the algorithmic risk score displayed on the dashboard. Clinical dialogue shifted from an open-ended "What is going on with this patient?" to a closed "Are we treating this sepsis alert appropriately?", even when the alert was a false positive. The algorithm had, in effect, framed the entire clinical discourse, performing a kind of cognitive capture that narrowed the team's differential diagnosis prematurely. The most effective MDTs in the study were those that cultivated a culture of what could be termed "algorithmic skepticism"—a collective habit of deliberately challenging the machine's framing, with designated team members, often a seasoned nurse or clinical pharmacist, empowered to explicitly present countervailing data that contested the computational narrative (Alraddadi et al., 2024).

This calls for a re-imagining of CDSS design for collaborative cognition. Current systems are largely designed for a single-user paradigm, delivering "pop-up" alerts to an individual. For MDTs, the future lies in designing for "shared decision displays"—large-format, dynamic dashboards visible to the entire team, which transparently visualize not just a recommendation but its underlying probability, the data points that influenced it, and the level of uncertainty (Parimbelli et al., 2018). Such a design would transform the algorithm from a silent, inscrutable oracle into a transparent, accountable participant in the team's discussion, whose logic can be collectively interrogated, debated, and weighted alongside other forms of knowing—the patient's lived experience, the nurse's intuition, and the clinician's pathophysiological reasoning. This shifts the goal from a machine replacing a human's judgment to a machine enhancing the team's collective sensemaking. The successful integration of DHTs into MDT decision-making, therefore, requires not just technical sophistication but a profound sensitivity to the sociology of clinical knowledge and the preservation of psychological safety for dissent in the presence of computational authority.

The Socio-Technical Chasm: Implementation, Equity, and the Human Factor

The preceding sections demonstrate that the impact of digital health technologies on multidisciplinary delivery is not an inherent property of the code, but an emergent property of the complex, adaptive socio-technical system into which it is deployed. The persistent gap between the transformative potential demonstrated in controlled pilots and the chaotic, fragmented reality experienced in many real-world implementations points to a deep "socio-technical chasm" (Greenhalgh et al., 2017). Bridging this chasm requires moving from a technology-centric to a human-centered implementation science, focusing on workflow integration, digital equity, and organizational culture.

A dominant failure mode in MDT digitalization is the "workflow misfit." Technologies, especially comprehensive EHRs, are often configured by administrators and IT specialists in a way that maps onto a generic, idealized clinical pathway, which bears little resemblance to the fluid, exception-filled reality of team-based care (Hertzum et al., 2021). For example, a system rigidly designed to sequentially route a discharge summary from physician to pharmacist to nurse ignores the reality of parallel, negotiated work, where the social worker might need to initiate community services before the pharmacy review is complete. This friction generates workarounds, frustration, and active subversion of the system, turning a tool designed for coordination into a new source of systemic drag (Holdsworth & Zaghloul, 2022). A systematic review by Alobayli et al. (2023) on EHR-related burnout found that for every hour of direct clinical care, physicians spent nearly two hours on desktop medicine, largely on documentation and order entry tasks that were previously distributed across the MDT or performed by dedicated clerical staff. This "digital tax" is disproportionately borne by certain professional groups, reshaping team roles and generating interprofessional resentment, as physicians feel they have become expensive data-entry clerks while nurses and allied health may feel their workflow has been invisibly expanded to accommodate system demands.

The solution, as advocated by proponents of socio-technical systems theory, is the participatory co-design of digital workflows (Baxter & Sommerville, 2011; Unver, 2023). This involves frontline clinicians from every discipline in the MDT, not just as passive end-user trainees, but as active, empowered co-creators of how the technology will function within their specific ecosystem. Examples include localization of EHR templates to reflect regional practice patterns, customization of interdisciplinary care plans that map onto the actual responsibilities of each team member, and the co-creation of communication escalation protocols that differentiate between urgent alerts for the MDT and routine informational messages (Liu et al., 2023). This process is inherently cultural, not just technical; it is a negotiation of who does what, who owns which piece of data, and how the team's collective workflow is best represented digitally.

The second dimension of the chasm is the widening of health equity gaps. While a key promise of DHTs is to democratize access to multidisciplinary care, a growing body of evidence suggests they can inadvertently create a "digital divide," stratifying patients into those who can and cannot benefit (Shaw et al., 2021; Rowland et al., 2024). This divide operates on multiple levels. Firstly, access to technology: the patient with broadband internet, a high-end smartphone, and high digital literacy can seamlessly participate in a video-based virtual MDT clinic, accessing a team of specialists for a chronic condition. In contrast, an elderly, impoverished patient with a visual impairment and no internet access is effectively disenfranchised, their primary care MDT left to coordinate care with one hand tied behind their back (Rodriguez et al., 2021). A study by Eberly et al. (2020) during the first wave of telemedicine adoption showed stark disparities, with older, non-English speaking, and publicly insured patients far less likely to use video visits, often relegated to audio-only phone calls that preclude the rich multidisciplinary assessment possible with a visual exam.

Secondly, algorithmic bias represents a new, more insidious frontier of inequity. If an AI model used to guide an MDT's risk assessment for complex care management is trained on historical data that reflects systemic racism—for example, using healthcare cost as a proxy for health status, as was the case in a widely used commercial algorithm identified by Obermeyer et al. (2019)—it will systematically under-identify Black patients as needing the intensive services of the MDT. The technology, presented as an objective tool, thus reifies and automates structural injustice at the very heart of the collaborative decision-making process. An MDT that uncritically relies on such a tool becomes an unwitting vector of systemic bias, making its collective output less equitable than if it relied on its unaided, albeit flawed, human judgment (Khera et al., 2023).

Finally, the linchpin of successful digital integration into MDTs is organizational culture and leadership (Table 2). Technology is introduced into a pre-existing ecosystem of power, trust, and habit. In a hierarchical, psychologically unsafe team culture, the implementation of DHTs can become a tool of surveillance and control, with log data used to monitor clinician productivity, eroding trust and driving burnout (Kellogg et al., 2020). Conversely, in a culture of high psychological safety and learning, the same technology can be framed as a collaborative instrument for shared reflection and improvement. Leaders of highly effective digitally-augmented MDTs are not simply technology champions; they are culture champions. They create dedicated time for the team to collectively review not just clinical outcomes, but their *digital workflow* itself—a "digital huddle" or "techno-anthropological pause" to reflect on how the tools are shaping their interactions, surfacing frustrations, and dynamically adapting their practices (Edmondson, 2018; Hagemann et al., 2023). This reflective capacity, a form of collective metacognition about the human-machine relationship, is the defining characteristic of an MDT that masters its technology rather than being mastered by it.

Table 2: Implementation Barriers and Human-Centered Mitigation Strategies for DHTs in MDTs

Domain	Core Barrier to Effective MDT Integration	Human-Centered Mitigation Strategy
Workflow & Usability	Rigid, one-size-fits-all digital architecture that clashes with the fluid, parallel nature of MDT work (Hertzum et al., 2021).	Participatory co-design and "localization" of EHRs and pathways, involving all MDT disciplines in configuring templates, documentation burden distribution, and communication protocols to mirror actual practice (Unver, 2023).
Equity & Access	Widening of the "digital divide" that excludes patients and even remote providers from the virtual MDT due to poor internet, low digital literacy, or disability (Shaw et al., 2021).	Proactive "digital inclusion" pathways: systematic screening for digital access needs; provision of technology and connectivity; use of trained digital navigators or community health workers to bridge the gap; maintaining non-digital (phone, in-person) pathways as a fundamental safety net (Rodriguez et al., 2021).
Algorithmic Trust	"Epistemic silencing" where opaque AI-driven recommendations suppress dissenting clinical intuition, especially from non-physician members (Lebovitz et al., 2022).	Implement "shared decision displays" that transparently visualize AI logic, uncertainty, and source data for the whole team. Cultivate a cultural norm of "algorithmic skepticism" and explicitly empower all team members to challenge the computational frame with ground-truth observations (Grote & Berens, 2020).
Organizational Culture	Use of digital surveillance metrics to monitor MDT activity, eroding psychological safety and driving burnout (Kellogg et al., 2020).	Transform technology governance from a tool of administrative control to one of team empowerment. Leaders frame log data as a collective resource for identifying workflow bottlenecks and rebalancing work, not individual performance management. Implement regular "digital workflow huddles" for shared reflection and adaptation (Edmondson, 2018; Hagemann et al., 2023).

Conclusion

The narrative woven through this review illuminates a central, irreducible truth: digital health technologies do not impose a singular, predictable effect on multidisciplinary healthcare delivery. Instead, they act as a powerful, catalytic mirror, reflecting and amplifying the very human, cultural, and systemic dynamics of the team into which they are introduced. The same integrated EHR platform that orchestrates a symphony of coordinated care in one institution can generate a cacophony of fragmented, transactional data entry in another. The AI-driven diagnostic tool that liberates a team's cognitive capacity for deeper ethical deliberation in one tumor board can, in a different cultural setting, silence a nurse's vital clinical intuition. The impact is a socio-technical epiphenomenon, not a technical certainty.

The analysis confirms that the gravest threat to the digital transformation of MDTs is not a failure of code, but a failure of imagination—a pervasive technological determinism that assumes a sophisticated tool will automatically yield a sophisticated collaborative process. The evidence definitively shows this to be false. The key fissure, the "socio-technical chasm," appears precisely where the logic of the machine grates against the nuanced, relational, and improvisational nature of human teamwork. It manifests as the screen gaze that breaks the empathetic connection in a multidisciplinary ward round, the algorithmic authority that narrows a team's differential diagnosis, the rigid documentation template that erases a patient's social context from the official record, and the digital divide that excludes the most vulnerable from the virtual collaborative table.

Moving forward, we must abandon the quest for a perfect, frictionless digital infrastructure and instead embrace the perpetual, adaptive work of socio-technical choreography. This requires a foundational shift towards a "digital humanism" in healthcare—a paradigm where technology is designed, implemented, and governed to serve and augment the inherently human, relational core of collaborative care. This has profound implications for practice, policy, and research.

For clinical practice, the imperative is to reconfigure the implementation process as a continuous, participatory dialogue. This means moving beyond basic end-user training to establishing permanent, interdisciplinary "digital stewardship" groups within MDTs, composed of representative clinicians, patients, and IT staff, who are given protected time and authority to adapt the digital environment to their evolving needs iteratively. The introduction of any significant new tool, such as an AI-based alert system, must be preceded not just by a technical pilot but by a structured team-based ethical and workflow simulation, where the potential for cognitive capture, deskilling, and equity harms are proactively surfaced and mitigated. The goal is to cultivate a state of collaborative metacognition, where the team's interaction with its technology is an explicit, regular subject of collective reflection, perhaps in the form of a brief "digital debrief" at the end of an MDT meeting (Hagemann et al., 2023).

For research and evaluation, the standard paradigm of the randomized controlled trial, which seeks to isolate the effect of a single technological variable, is fundamentally inadequate for capturing these complex, emergent, and context-dependent outcomes (Greenhalgh & Papoutsi, 2018). The field must embrace realist evaluation, ethnographic study, and participatory action research as coequal pillars of evidence generation. We need rich, granular accounts of how a "positive outlier" MDT has successfully woven DHTs into its fabric, as well as forensic analyses of spectacular failures, to build a nuanced understanding of the generative mechanisms and contextual conditions that lead to success or failure. A core set of socio-technical process metrics—measuring communication density, conversational turn-taking equity, psychological safety, and team cognitive load—should be developed and validated to complement traditional biomedical outcome metrics (Liu et al., 2023).

Finally, this review signals that the digitalization of multidisciplinary care is not a destination but a continuous process of negotiation. It is a negotiation between the structured and the improvisational, between the algorithm's certainty and the inherent uncertainty of human biology, between the global scalability of a platform and the irreducibly local nature of a trusting therapeutic relationship. The ultimate promise of digital health technologies for the MDT lies not in creating a hyper-efficient, automated, machine-driven assembly line, but in crafting a more human, more connected, and more equitable collaborative intelligence. It is in weaving a digital tapestry that does not replace the human hand but gives its complex, beautiful patterns a stronger, more resilient warp, enabling a diverse group of professionals to think, feel, and act as one in service of the patient.

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