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Digital Care and Human Death: Ethical Tensions at the End of Life

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Abstract. The digitization of healthcare – through electronic health records, predictive algorithms, remote monitoring, and automated decision-making tools – has revolutionized clinical workflows and optimized patient management. However, these developments often carry unintended consequences when applied to the end-of-life context, where the subjective, relational, and existential dimensions of dying resist abstraction and quantification. This paper explores the tensions between digital efficiency and the human realities of death, arguing that the virtuality of digital health systems risks alienating patients, families, and clinicians at precisely the moments where care must be most embodied and relational. Drawing from a conceptual analysis informed by medical ethics and palliative care literature, we examine how virtual representations (data, dashboards, protocols) interact with real dying bodies and social relationships. Through case illustrations, we highlight how systems designed for efficiency can unintentionally marginalize suffering, flatten complex narratives, and displace the rituals and presence that define authentic death. Our findings suggest a pressing need to reorient digital health design to account for the limits of representation and the irreplaceability of human connection at the end of life. We argue that any future model of digital care must not only prioritize outcomes but also preserve dignity, ambiguity, and relational integrity in death.

Keywords. Digital Health, End-of-life care, Virtuality, Alienation, Ethics.

1. Introduction

Digital technologies are transforming healthcare. Electronic health records, clinical decision support systems, predictive algorithms, and telemedicine platforms are rapidly becoming central to how care is delivered, documented, and evaluated [1]. Promoted as tools to enhance efficiency, reduce error, and optimize clinical outcomes, these systems are increasingly integrated into everyday medical practice [2]. In many domains of care, digitization has brought undeniable benefits: streamlined communication, improved access to patient information, and the ability to analyze large datasets for public health insights [3]. However, the extension of these systems into the context of death and dying raises critical questions [4]. Unlike other clinical settings, end-of-life care confronts the limits of what can be standardized, measured, or virtualized. Dying is not merely a clinical outcome; it is a profoundly human experience characterized by ambiguity, vulnerability, and the need for presence. Yet digital systems, by design, prioritize clarity,

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structure, and abstraction [5]. This tension – between the virtual logic of health data and the embodied, relational reality of dying – forms the central concern of this paper.

We contend that the current trajectory of healthcare digitization often fails to accommodate the existential dimensions of death. Patients become data points; dying becomes a procedural endpoint. The very features that make digital tools efficient—automated protocols, data-driven decisions, remote monitoring—can displace personal narratives, disrupt rituals, and alienate patients and caregivers when applied uncritically to end-of-life contexts. The risk is not just dehumanization but the erosion of what makes death meaningful.

This paper investigates how digital infrastructures shape, constrain, or overlook critical aspects of dying. Through conceptual analysis and illustrative cases, we aim to expose the ethical and epistemological blind spots of digitized care at the end of life. Our goal is not to dismiss technological innovation, but to call for a more reflective, relationally sensitive approach to digital health design – one that acknowledges the limits of representation and the moral necessity of presence at the threshold of death.

2. Methods

This paper employs a qualitative, conceptual-empirical hybrid methodology to explore how digital technologies in end-of-life care – though often developed to improve coordination, speed, and data transparency – may unintentionally erode essential ethical and relational dimensions of dying. Our aim is not to generate new empirical data but to provide a conceptually grounded ethical interpretation of existing clinical phenomena, using published case studies as analytic anchors.

Two illustrative cases were selected from peer-reviewed qualitative literature and professional field reports: a mobile symptom tracking application used in home-based palliative care [6] and a hospital-based automated death notification system [7]. These cases were chosen for their capacity to concretely demonstrate the ethical tensions and experiential disruptions that can accompany the digital mediation of death-related care. The case material provides the empirical foundation for a conceptual analysis of how technologies operate in emotionally and morally charged contexts.

The interpretive framework centers on three interrelated concepts: virtuality, efficiency, and alienation [8]. These categories are drawn from philosophical and sociotechnical critiques of digital systems and medical rationality [9]. Virtuality, in this context, refers to the abstraction of embodied, affective, and symbolic experiences into digital representations – formats that are legible to machines but often inattentive to existential nuance [10]. Efficiency, often assumed as a healthcare virtue, is problematized when it overrides qualities like narrative depth, temporal patience, or relational presence – elements that are particularly vital in the context of dying. Alienation is approached as a structural and affective phenomenon: the distancing of patients, caregivers, and families from each other and from the meaning of death through technological mediation and proceduralism. While the interpretive claims advanced in this analysis are reflexively shaped by the interdisciplinary expertise of author – including backgrounds in digital health, palliative medicine, and bioethics – the empirical foundation of the study is exclusively drawn from published case materials, encompassing peer-reviewed qualitative studies and professional field reports. This methodological stance ensures a principled distinction between clinical observation and philosophical interpretation. At the same time, it enables a contextually anchored ethical

reading of digitally mediated end-of-life care, one that remains sensitive to the lived complexities of care practice while foregrounding the structural and symbolic implications of technological design and deployment in morally charged environments.

3. Results

The application of the above conceptual lens to the two case studies reveals four interrelated themes. These themes articulate how the digitization of palliative care can subtly, but powerfully, reshape the symbolic, temporal, and relational fabric of dying.

Case Observations

In the first case, a mobile symptom tracking application was introduced to support home-based palliative care [9]. Designed to improve pain reporting and clinical responsiveness, the app encouraged patients and caregivers to input daily symptom data such as pain intensity, medication adherence, and sleep patterns. While this led to more responsive treatment adjustments, clinicians—particularly nurses—reported a marked reduction in face-to-face visits. Emotional cues, nonverbal expressions, and spontaneous interactions were lost in favor of metric-based oversight. Several nurses expressed unease and even guilt over missed emotional cues or delayed interventions due to asynchronous communication. The relational intimacy and embodied presence central to palliative care were increasingly displaced by a logic of surveillance and optimization.

In the second case, a hospital death notification system was implemented to streamline communication about a patient's death to family members, legal representatives, and institutional systems [10]. While the system improved administrative coordination and ensured regulatory compliance, clinicians reported discomfort with the way the technology restructured a deeply human moment. Death became a procedural trigger rather than an occasion for symbolic and emotional acknowledgment. Some families received news of a loved one's death through standardized messages or digital alerts, with little opportunity for direct human contact or meaningful ritual. Clinicians described a sense of moral and emotional detachment, feeling reduced to agents within a system.

Interpretive Themes

(1) Abstraction of the Dying Body: In both cases, but especially in the symptom tracking scenario, the patient's body was transformed into a series of discrete, codified data points. What counts as clinically visible and actionable—e.g., a numeric pain score—is elevated, while subtler relational and emotional signals are marginalized. The digital interface restructures the clinical gaze, making the body technically legible but experientially opaque.

(2) Temporal Dissonance between System Logic and Dying Time: The automated death notification system exemplifies the temporal compression that digital infrastructures can impose. The system's real-time responsiveness clashes with the slower, affectively charged temporality of grieving and farewell. Procedural speed, while efficient, undermines the symbolic elasticity of dying time, replacing it with a linear, task-driven rhythm that leaves little space for ambiguity or transition.

(3) Narrative and Symbolic Flattening: Digital interfaces in both systems limited the expressive range available to patients and families. The symptom app reduced expression to checkboxes and numeric fields, with no means for articulating existential concerns or shifts in meaning. Similarly, the death notification system replaced face-to-face rituals with transactional messages, stripping death of its symbolic density.

(4) Procedural Alienation: Clinicians reported a shift in their roles; from caregivers engaged in affective and moral presence to system operators managing alerts and workflows. In both cases, caregivers and families described a sense of displacement: being "managed" through interfaces rather than cared for through relationships. This procedural logic generates a subtle but powerful sense of alienation, structurally encoded into the architecture of care delivery.

Taken together, these findings show how the digitization of end-of-life care. When pursued without attention to the symbolic, emotional, and moral dimensions of dying, can unintentionally erode what makes the dying process humanly bearable and ethically meaningful. Technologies designed for clinical optimization must be evaluated not only for effectiveness but also for their capacity to preserve the relational and existential depth required at the end of life.

4. Discussion and Conclusions

The findings of this study illuminate a central paradox in the digitization of end-of-life care: technologies designed to improve clinical efficiency, coordination, and oversight may simultaneously erode the very ethical and relational conditions that render dying a meaningful human experience. By examining the case materials through the lenses of virtuality, efficiency, and alienation, this analysis reveals how digital infrastructures, when deployed without sufficient attention to symbolic and existential dimensions, risk abstracting suffering, displacing embodied presence, and disrupting the temporality and narrative integrity of dying. A particularly salient outcome is the epistemic shift introduced when bodily, emotional, and existential states are rendered into digital formats. While tools such as symptom tracking applications may enable faster clinical responses and generate actionable insights, they also redefine what is considered clinically "knowable" and thus treatable. This redefinition narrows the scope of care to that which is measurable, calculable, and recordable, often at the expense of affective or relational knowledge. Such epistemic narrowing aligns with broader critiques in the philosophy of medicine, where technocentric approaches risk reducing patients to “cases” or “datasets,” obscuring their full moral, emotional, and narrative identities. In the context of palliative care, this abstraction of experience into metricized fragments represents not only a clinical limitation but a profound ethical deficit.A second critical issue concerns the temporal dissonance between the logic of digital systems and the lived temporality of dying. As the case of the automated hospital death notification system demonstrates, institutional infrastructures often prioritize immediacy, synchronization, and procedural flow. These values, while appropriate in domains such as logistics or emergency medicine, are fundamentally misaligned with the temporality of death and grief, which are often nonlinear, ambiguous, and emotionally suspended. The temporal compression enforced by digital systems can truncate the symbolic space in which dying is made meaningful for patients, families, and clinicians alike. This misalignment is not merely an issue of workflow design; it constitutes a deep structural incompatibility between human and machinic time. When technological systems impose rigid timeframes onto moments of death, they risk severing the relational and symbolic transitions that allow for mourning, reconciliation, and closure. Equally troubling are the narrative constraints embedded within many digital care tools. The architecture of digital platforms often limits patient expression to predefined formats – checklists, numeric scales, dropdown menus – excluding space for open-ended reflection, affective nuance,

or existential discourse. As a result, patients are not only denied the opportunity to narrate their experience but are also subtly reconstituted as decontextualized data subjects. From an ethical standpoint, this diminishes moral recognition: the acknowledgment of patients as full persons with histories, values, and a claim to be heard. Without narrative space, the personhood of the dying is flattened into clinical categories, and the rich ambiguity of their final moments is lost to a form of symbolic erasure. Taken together, these findings underscore the urgent need for ethical scrutiny and critical design thinking in the development and deployment of digital technologies in end-of-life contexts. Such scrutiny must go beyond technical assessments of accuracy or utility to ask: What kinds of experiences do these systems enable or foreclose? What moral frameworks are encoded in their design? What aspects of dying do they honor, and which do they marginalize or erase? Addressing these questions will require cross-disciplinary collaboration among technologists, clinicians, ethicists, social scientists, patients and caregivers themselves. Only by bringing these perspectives together can we develop technologies that do not simply optimize care delivery but safeguard the moral and relational texture of dying. This means designing systems that accommodate ambiguity, that enable rather than displace human presence, and that recognize death not as a logistical event but as a profound human passage deserving of dignity, narrative, and meaning. In conclusion, the digitization of end-of-life care is not inherently unethical, but it is never ethically neutral. It carries with it assumptions about time, knowledge, presence, and personhood that must be interrogated. Without this interrogation, we risk building systems that are clinically efficient but existentially impoverished. Future developments in digital health must therefore proceed not only with technical rigor but with ethical imagination.

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