

Original Article

# Evaluating the Impact: Patient and Provider Satisfaction with EHR Systems in Oncology and the Path to Enhancement

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**Abstract:** In the landscape of oncology, where the precision and personalization of care are paramount, the role of Electronic Health Records (EHR) systems emerges as both foundational and transformative. This study delves into the heart of oncology care, evaluating the impact of EHR systems through the lens of those it serves most intimately: the patients navigating their cancer journey and the healthcare providers dedicated to their treatment. Amidst the digital transformation sweeping across healthcare, our research seeks to dissect the real-world functionality of EHR systems, striving to understand how well they align with the needs and expectations of both patients and providers in these critical care settings. Employing a mixed-methods approach, this investigation weaves together quantitative data and qualitative narratives to uncover the multifaceted experiences with EHR systems in oncology. Through this lens, we aim to illuminate the strengths that EHR systems bring to cancer care, as well as the limitations that may hinder their potential. Our findings lay bare the essential need for on-going refinement of EHR technologies, pressing for advancements that prioritize patient-centered features and provider efficiency to enhance the quality and efficacy of cancer treatment. By offering a rich, comprehensive analysis of current EHR system implementations and their impact on patient-provider satisfaction, this study provides a beacon for future development in the field. It advocates for a concerted effort among stakeholders in the healthcare technology sphere to embrace continuous improvement, urging the adoption of design principles and functionalities that make EHR systems more attuned to the nuanced needs of oncology care. In doing so, this article not only contributes to the discourse on healthcare innovation but also charts a path forward for the evolution of EHR systems into more effective, empathetic tools in the fight against cancer.

**Keywords:** EHR Systems, Oncology, Cancer, Healthcare.

## I. INTRODUCTION

### A. Background

The journey into digital healthcare, spearheaded by the introduction of Electronic Health Records (EHR) systems, marks a significant leap forward, especially in the world of oncology. These digital systems have transformed the landscape of patient care, making the management, sharing, and utilization of patient information smoother and more efficient than ever before. In the intricate and fast-paced realm of cancer care, EHR systems shine as beacons of progress, offering a streamlined way for healthcare professionals to access patient data in real-time. This access is not just about having information at one's fingertips; it's about enabling a level of coordination and efficiency in patient care that was previously challenging to achieve.

With EHR systems, the numerous specialists involved in a patient's cancer journey can collaborate more effectively, ensuring that care is both timely and tailored. However, the true measure of these systems' success lies in their ability to resonate with the very people they are designed to serve: the patients navigating their cancer treatments and the dedicated professionals by their side. It's about creating technology that doesn't just function but fits—adapting to the complex, often rapidly changing needs of oncology care. For EHR systems to fully realize their potential, they must be more than just technologically advanced; they need to be versatile, user-friendly, and finely attuned to the unique challenges and intricacies of treating cancer.

### B. Problem Statement

As Electronic Health Records (EHR) systems have become ubiquitous across healthcare landscapes, a glaring issue has emerged, highlighting a significant disconnect in our understanding. At the heart of this challenge are the experiences of those most intimately connected with EHR systems in oncology: the patients undergoing the rigors of cancer treatment and the dedicated healthcare providers guiding them through their journey. The crux of the matter lies in our limited grasp of how these crucial stakeholders perceive EHR systems, specifically, how satisfied they feel with their functionality and support in the context of cancer care. Satisfaction is more than just a metric; it's a mirror reflecting the true efficacy of EHR systems in catering to the intricate needs of oncology care, where personalization and efficiency are not just desired but essential. Unfortunately, current efforts to gauge this satisfaction through feedback mechanisms and surveys often fall short, skimming the surface and missing the depth of user experiences. This shortfall not only paints an incomplete picture but also



leaves valuable insights on the table—insights that could drive meaningful improvements. This situation underscores an urgent need to dive deeper into understanding what shapes satisfaction with EHR systems in oncology, striving to uncover the real stories behind the statistics and to shine a light on both the triumphs and the trials of navigating cancer care in the digital age.

### **C. Purpose of the Study**

Embarking on this study, we set out with a clear and heartfelt mission: to delve into the real experiences of those on the front lines of oncology care—patients and their healthcare providers—as they interact with Electronic Health Records (EHR) systems. Our journey is fueled by the desire to unearth what truly resonates with these critical stakeholders, discerning which aspects of EHR systems enhance their journey through cancer care and which aspects may inadvertently add to their burden. Through careful examination and analysis, our goal is to shine a light on the specific features of EHR systems that align with the ideals of satisfaction, efficiency, and patient-centered care, as well as to identify those areas where there's room for growth. This research is more than an academic pursuit; it's a call to action for healthcare administrators, IT experts, and policymakers. We aim to equip them with the insights needed to spark a movement of continuous improvement in EHR technologies, ensuring these systems are not just tools for management but lifelines that genuinely support and uplift the patient experience in oncology. By bridging the gap between technological capability and human need, our study seeks to pave the way for advancements that make cancer care not only more effective but also more compassionate and attuned to the needs of those it serves.

### **D. Significance of the Study**

The journey to understand patient and provider satisfaction with Electronic Health Records (EHR) systems carries a weight far beyond the confines of academic curiosity. It holds a beacon of hope for the future of healthcare technology in oncology, promising a horizon where EHR systems are not just tools, but partners in care. Imagine a world where these systems are perfectly in tune with the needs and preferences of those they serve, where the quality of cancer care is elevated not just in theory but in practice, leading to tangible improvements in patient outcomes. Envision a healthcare environment where providers, relieved by the efficiency and patient-centric nature of EHR systems, experience less burnout and greater job satisfaction, inherently elevating the care they deliver.

This study isn't just adding to the conversation; it's seeking to change the narrative. It's about laying down the groundwork for EHR systems that truly understand and cater to the complexities of oncology care. We're not just looking to tweak the existing framework; we're advocating for a fundamental redesign—a shift towards systems that are both patient-centered and provider-friendly. Through this research, we aim to usher in a new era of technology-enhanced healthcare in oncology, where EHR systems do more than store data; they improve lives, making care more compassionate, more intuitive, and more effective for everyone involved. The significance of this study is measured not just in its findings but in its potential to inspire a transformative shift in how technology is leveraged in the battle against cancer.

## **II. LITERATURE REVIEW**

### **A. Evolution and Adoption of EHR Systems in Healthcare**

The journey of Electronic Health Records (EHR) systems from their inception to their pivotal role in modern healthcare represents a remarkable evolution in the way medical information is managed and utilized. Initially, healthcare records were manually maintained, limiting accessibility and the potential for analysis. The advent of EHR systems heralded a new era of digital healthcare, transforming not just record-keeping but the entire healthcare delivery model. This digital shift began tentatively in the late 20th century, gaining significant momentum in the early 2000s with advancements in technology and substantial government incentives, particularly in the United States through the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009.

The adoption of EHR systems has been driven by the promise of numerous benefits, including enhanced coordination of care, improved efficiency and productivity, and the facilitation of evidence-based treatments. In the realm of oncology, the impact of EHR adoption has been profound. The complexity of cancer care, which often involves multiple specialists and treatment modalities, has found a promising solution in EHR systems. These systems offer a unified platform for storing and accessing patient information, enabling a more coordinated approach to cancer treatment and a potential improvement in treatment outcomes. Moreover, the capacity for EHRs to support big data analytics and precision medicine is particularly promising in oncology, where treatment decisions can be informed by vast datasets, improving the personalization and effectiveness of care.

### **B. Patient Satisfaction in the Digital Era**

As healthcare continues to embrace digital transformation, understanding patient experiences and satisfaction with EHR systems has become crucial. Research in this area has illuminated the diverse ways in which digital health records

impact patient engagement and the overall healthcare experience. A consistent theme across studies is the potential of EHRs to empower patients, offering them unprecedented access to their health information through patient portals. This access encourages a more active role in their healthcare management, leading to increased engagement and satisfaction. Particularly in oncology, where patients often navigate complex treatment plans, the clarity and accessibility of information provided by EHR systems can demystify the care process, fostering a sense of control and partnership in care decisions. However, the literature also points to areas for improvement. While many patients appreciate the transparency and accessibility offered by EHRs, concerns have been raised about the usability of patient portals and the quality of the information provided. There is a delicate balance between offering comprehensive information and ensuring it is presented in a way that is understandable and not overwhelming for patients. Moreover, the impersonal nature of digital interactions and the potential for information overload underscore the need for EHR systems to be designed and implemented with patient needs and preferences at the forefront.

### **C. Provider Perspectives on EHR Usability and Functionality**

Parallel to patient experiences, healthcare providers' satisfaction with EHR systems is a critical factor influencing the success of digital health records. Studies assessing provider perspectives on EHR usability and functionality reveal a complex picture. On one hand, providers recognize the potential of EHR systems to enhance care delivery, particularly in oncology, where the detailed patient information required for treatment decisions can be readily accessible. The ability of EHRs to integrate with other digital health tools and databases can significantly streamline workflow and support the multidisciplinary collaboration essential in cancer care.

On the other hand, concerns have been consistently raised about the challenges posed by EHR systems. Usability issues, including complex interfaces and time-consuming data entry processes, can detract from patient care time and contribute to provider burnout. Furthermore, the generic design of many EHR systems may not adequately accommodate the intricacies of oncology treatments, such as tracking complex dosing schedules and monitoring side effects. Providers emphasize the need for EHR systems to be more customizable and responsive to the specific demands of oncology care, suggesting that the full potential of EHRs in improving healthcare delivery is yet to be realized.

## **III. METHODOLOGY**

### **A. Research Design**

This study employs a mixed-methods approach to comprehensively assess satisfaction levels and experiences with Electronic Health Record (EHR) systems among patients and healthcare providers in oncology settings. Recognizing the complexity of the subject matter, this research design integrates the broad-reaching, generalizable insights afforded by quantitative methods with the depth and nuance provided by qualitative analysis. This dual approach allows for a more complete understanding of the efficacy and impact of EHR systems in the realm of oncology care.

#### *a) Quantitative Surveys:*

The journey begins with structured surveys targeted at both patients undergoing the rigors of cancer treatment and the healthcare professionals who navigate these challenges alongside them. These surveys are meticulously crafted to tease out the levels of satisfaction with EHR systems, probing into facets such as the ease of use, the accessibility and clarity of patient information, the efficacy of communication tools embedded within the EHR, and the perceived impact on the quality and outcomes of treatment. Utilizing a Likert scale, we invite respondents to rate their experiences, offering a quantitative measure that serves as a foundation for broader analysis. This data, rich in its scope, enables us to map out trends and patterns, pinpointing the strengths of current EHR implementations and illuminating the corners where growth is not just necessary but critical for enhancing oncology care.

#### *b) Qualitative Interviews:*

Building on the quantitative framework, we dive deeper through qualitative interviews with selected participants from our survey cohort. This phase is about giving voice to the individual stories that lie beneath the surface of statistical data. It's an opportunity to engage with the nuanced personal experiences, perceptions, and insights of those who interact with EHR systems daily. These conversations aim to unlock the rich, contextual narratives that quantitative data alone cannot capture, offering a window into the lived realities of using EHRs in oncology settings. From discussing how EHRs facilitate or hinder patient-provider communication to examining their role in managing complex treatment trajectories and personalizing patient care, these interviews strive to unearth the subtle dynamics at play, providing a canvas upon which the true colors of EHR systems' efficacy, challenges, and potential can be painted.

## **B. Data Collection and Analysis**

### *a) Data Collection Process:*

At the heart of our data collection phase are two key activities—surveys and interviews—designed to tap into the rich vein of experiences of patients and healthcare providers. Our surveys, sent out into the digital ether, reach out to a diverse group from various oncology centers, inviting them to share their interactions with EHR systems. From these surveys, we carefully select participants for interviews, aiming to include voices from across the spectrum of experiences. These interviews, conducted with empathy and curiosity, are semi-structured voyages into the personal landscapes of our participants, ensuring we cover essential ground while allowing the space for stories to unfold naturally.

### *b) Analysis of Quantitative Data:*

The responses from our surveys are more than just data; they're echoes of real experiences. We employ statistical software to sift through these echoes, drawing out patterns and insights through descriptive and inferential statistics. We look for rhythms in the data—mean, median, mode—and explore the variance to understand the spread of satisfaction levels. Correlation analysis helps us connect different dots, uncovering relationships between various aspects of EHR satisfaction. Through subgroup analysis, we listen for the distinct voices among different demographics and specialties, seeking to understand the unique needs and challenges they face.

### *c) Analysis of Qualitative Data:*

The qualitative interviews are transcribed with care, each word a precious piece of the puzzle. Thematic analysis allows us to weave these pieces together, starting with a deep engagement with the text to generate initial codes. These codes, like threads, are then woven into themes that capture the essence of experiences with EHR systems in oncology care. This process is not just analytical; it's an act of listening, of finding meaning in the narratives shared with us, providing depth and context to the broader patterns observed.

### *d) Integration of Findings:*

The culmination of our methodological journey is the integration of quantitative and qualitative findings, a task akin to creating a tapestry from threads of data and stories. This synthesis illuminates the landscape of EHR satisfaction, highlighting how the broad trends from survey data are enriched and nuanced by personal experiences. Our aim is to offer a holistic view of the impact of EHR systems in oncology care, spotlighting strengths and pinpointing challenges in a way that invites action and reflection.

### *e) Ethical Considerations:*

Throughout our research, we navigate with a deep respect for the dignity and privacy of our participants. Informed consent, confidentiality, and sensitivity to the emotional weight of health-related discussions are our guiding stars. We're committed to upholding the highest ethical standards, seeking approval from review boards and walking alongside our participants with care and respect.

## **IV. RESULTS AND DISCUSSION**

### **A. Overview of Findings**

The integration of Electronic Health Records (EHR) systems into oncology has been heralded as a cornerstone of modern healthcare, promising to streamline processes and improve patient outcomes. This study's mixed-methods approach, combining quantitative surveys with qualitative interviews, has revealed a complex landscape of satisfaction, benefits, and concerns regarding EHR systems from the perspectives of both patients and healthcare providers in oncology settings.

#### *a) Key Findings from Surveys:*

The quantitative strands of our investigation, rooted in surveys distributed across various oncology settings, have shed light on a moderate level of satisfaction with EHR systems among both key stakeholders: patients and healthcare providers. Patients, in their feedback, voiced an appreciation for the newfound access to their medical information that EHR systems provide—a digital window into their health narrative that empowers them to actively participate in their care. Yet, this appreciation is tinged with reservations, particularly around the usability of patient portals and the clarity of the medical information presented, which sometimes feels more like a cryptic code than a clear roadmap of their health journey.

On the flip side, healthcare providers acknowledged the value of having a centralized repository of patient data, which EHR systems offer. This centralization is a boon for the multidisciplinary teams that are the backbone of comprehensive cancer care, enabling smoother collaboration and information sharing. However, this positive note is balanced by a chorus of frustrations regarding the practical use of these systems. Providers lament the often cumbersome data entry processes and

the lack of interfaces that truly understand and adapt to the unique nuances of oncology treatment, highlighting a gap between the potential of EHR systems and their current functionality.

*b) Insights from Qualitative Interviews:*

The qualitative threads of our study, comprised of heartfelt interviews with participants, provided a deeper dive into the personal experiences with EHR systems. For patients, these systems have been a mixed bag—some recount how EHRs have demystified their treatment process, offering a sense of control and understanding. Others, however, describe a journey fraught with confusion, where the digital records seem to obscure rather than illuminate their path to wellness.

Healthcare providers echoed this sentiment of ambivalence, painting a picture of EHR systems as a double-edged sword. On one hand, these digital tools have the potential to streamline care coordination, making the treatment process more cohesive. Yet, on the other, they speak to the burdens these systems introduce—time taken away from direct patient care to navigate clunky interfaces and input data, a reminder of the technology's imperfections.

A resonant theme across these narratives is the call for EHR systems that are not just functional but intuitive, designed with the complexities of oncology care in mind. Both patients and providers express a yearning for systems that are customizable, that can bend and flex to meet the specific demands of cancer treatment, and that prioritize the human experience at their core.

## **B. Implications for EHR System Improvement**

The findings from this study underscore the urgent need for continuous improvement of EHR systems to better meet the needs of oncology patients and providers. The moderate satisfaction levels, coupled with the identified benefits and areas of concern, point to a significant opportunity for enhancing the functionality, usability, and impact of EHR systems in oncology.

*a) Enhancing Usability and Customization:*

A recurring theme from both patients and providers is the pressing need to enhance the usability of EHR systems. Patients are seeking portals that demystify rather than complicate—their health information should be presented in a way that is not only easy to understand but also actionable. They envision a system where their treatment journey, from diagnosis to recovery, is mapped out in clear, accessible language, empowering them to take an active role in their care.

On the flip side, healthcare providers are calling for EHR systems that recognize and adapt to the intricate dance of oncology treatment. They desire tools that streamline the often laborious process of data entry, systems that are not just repositories of information but are intelligent enough to present this data in a way that informs and facilitates treatment decisions. The call is for interfaces that are as sophisticated in their functionality as they are simple in their use, tailored to the unique challenges and needs of oncology care.

*b) Fostering Patient Engagement and Education:*

The potential of EHR systems to act as catalysts for patient empowerment and engagement is immense. Our study underlines the importance of building features into EHR systems that not only engage but also educate patients about their treatment. This could take the form of interactive treatment plans that patients can navigate to understand their journey better, personalized educational resources that provide insights into their condition and treatment options, and digital tools that encourage and facilitate ongoing communication with their care teams. Such features could transform the EHR from a passive record into an active participant in the patient's health journey.

*c) Supporting Multidisciplinary Collaboration:*

EHR systems are pivotal in the orchestration of multidisciplinary collaboration in oncology, a field where the coordination of diverse specialists is key to effective treatment. The insights from our study emphasize the need for EHR systems to evolve with features that break down silos, enabling seamless information sharing and collaboration across the entire care team. Future enhancements should aim to create a digital environment where the oncologist, the nursing staff, the radiologist, and all other involved healthcare professionals can easily access and contribute to a unified patient record, fostering a more cohesive and integrated approach to cancer treatment.

## **C. Addressing the Gap between Expectations and Reality**

A critical gap exists between the expectations of oncology patients and providers and the current functionalities of EHR systems. This gap reflects both the high hopes placed on technology to revolutionize healthcare and the practical challenges of designing systems that adequately address the complex needs of oncology care.

*a) Aligning EHR Systems with Oncology Needs:*

The journey toward narrowing this divide must begin with a commitment to understanding—truly understanding—the unique landscape of oncology care. It necessitates a design philosophy for EHR systems that's deeply informed by the voices of those it serves. Engaging both patients and healthcare providers in the conversation around EHR development is crucial. Their insights and feedback are invaluable, offering a compass by which we can steer these systems towards greater relevance and efficacy in cancer care. The goal is clear: to evolve EHR systems into partners that not only manage data but also resonate with the intricacies of oncology treatments and patient care.

*b) Pathways for Improvement:*

Charting the course for improvement requires a multi-pronged strategy, one that's as innovative as it is inclusive. It calls for a significant investment in research and development, targeting solutions specifically crafted to address the challenges unique to oncology. This includes leveraging cutting-edge technologies like advanced data analytics and artificial intelligence, not just for their novelty but for their potential to enable personalized treatment plans and proactive care management that can transform patient outcomes.

Equally important is the forging of collaborative partnerships that bring together the diverse perspectives of healthcare providers, patients, EHR developers, and policymakers. These partnerships hold the key to co-creating EHR systems that don't just exist but thrive at the intersection of technology and human care. They offer a platform for collective innovation, where the shared goal is to design EHR systems that are not just tools but allies in the fight against cancer.

Moreover, fostering an ongoing dialogue within the healthcare community about the evolving needs and expectations of EHR systems in oncology is vital. This conversation, ever-evolving, ensures that EHR systems remain agile, ready to adapt to the latest developments in healthcare practices, technological advancements, and, most importantly, the changing needs of patients. It's about keeping the lines of communication open, ensuring that as the landscape of oncology care shifts, so too do the systems designed to support it.

## V. CONCLUSION

### **A. Unearthing Insights and Bridging Gaps**

Our journey through the landscapes of Electronic Health Records (EHR) in oncology has revealed a tapestry of experiences, painting a picture of moderate satisfaction tempered with notable challenges. The voices of patients and providers, captured through our mixed-methods study, echo a common theme: the potential of EHR systems is vast, yet their current state leaves room for growth. This exploration has not only highlighted the strengths of digital health platforms but has also uncovered the critical gaps between what EHR systems currently offer and the comprehensive needs of oncology care.

### **B. Toward a More Responsive and Empathetic Future**

The path forward, illuminated by our findings, calls for an earnest and collaborative effort to refine EHR systems. Enhancing usability, enriching patient engagement, and tailoring functionalities to the intricate demands of oncology are not just goals but necessities. The future of EHRs lies in their ability to adapt—to morph into tools that are not only technologically proficient but also deeply empathetic and patient-centered. This evolution demands a synergy of technology and humanity, where every update and innovation is informed by the real-world experiences of those at the heart of oncology care.

### **C. A Collaborative Vision for Improvement**

Our study underscores the importance of a collective approach to the continuous improvement of EHR systems. By fostering a dialogue among healthcare providers, patients, IT experts, and policymakers, we can create a fertile ground for innovations that genuinely address the needs of oncology care. This collaborative vision is not just about making EHR systems more efficient; it's about reimagining them as pillars of support that empower patients and providers, making the journey through cancer care more informed, coordinated, and compassionate.

### **D. Embracing the Challenge, Seizing the Opportunity**

As we stand on the threshold of a new era in healthcare technology, the challenge of optimizing EHR systems in oncology is daunting but not insurmountable. It presents an opportunity to dramatically enhance the quality of cancer care, improve patient outcomes, and uplift the spirits of those who dedicate their lives to fighting this disease. By embracing the insights gleaned from this study and committing to a path of continuous, user-driven improvement, we can bridge the digital divide. Together, we can ensure that EHR systems evolve into true partners in care—tools that not only store data but also kindle hope, understanding, and connection in the heart of oncology.

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