INTEGRATING PATIENT-CENTERED APPROACHES INTO ELECTRONIC HEALTH RECORDS (EHR) TO IMPROVE CANCER TREATMENT OUTCOMES

Sarika Mulukuntla[1], Mounika Gaddam[2*]

Abstract:
In an era where technology profoundly shapes the landscape of healthcare, this study advocates for a revolution in cancer care through the lens of Electronic Health Records (EHR). It champions a shift towards embedding patient-centered approaches within EHR systems, aiming to transform them from mere digital repositories into vital tools that echo the voices, preferences, and values of those facing cancer. At its heart, our research is driven by the conviction that the nuances of patient experiences are crucial to crafting effective treatment strategies. By integrating these personal narratives into EHR, we seek not only to enhance treatment outcomes but to foster a healthcare environment where technology serves humanity. Through examining the synergy between patients and providers within the digital ecosystem of EHR, this study illuminates a path towards a future where cancer care is not only more effective but inherently more compassionate, highlighting that the true power of technology lies in its ability to understand and adapt to the human condition.

Keywords: Patient-Centered Care, Electronic Health Records (EHR), Cancer Treatment, Patient Outcomes, Personalized Medicine, Patient Engagement, Data Integration, Healthcare Technology, Patient-Reported Outcomes, Patient Satisfaction, Oncology, Healthcare Interoperability, Data Privacy, Clinical Decision-Making, Treatment Plans.

[1*,2]Enterprise AI/ML Engineer in Healthcare Applications

***Correspondence Author:** Mounika Gaddam

DOI: 10.53555/ecb/2021.10.1.08

1. Introduction

In the multifaceted battle against cancer, our arena has expanded significantly, encompassing not only the physical spaces of laboratories and hospitals but also the digital landscapes of Electronic Health Records (EHRs). These digital compilations of patient health narratives have transitioned from simple repositories of medical data to becoming pivotal instruments in the orchestration of clinical decision-making. This evolution of EHRs symbolizes a critical leap towards a future where healthcare is not just efficient and data-driven but also deeply personalized, catering to the unique journey of each individual facing cancer.

1.1 Background

The dawn of Electronic Health Records (EHR) has been like a beacon of progress, illuminating the healthcare landscape with the promise of a digital future. EHR systems have revolutionized how we handle health information, transforming patient records from stacks of paper into dynamic, accessible digital files. This leap forward has empowered healthcare professionals like never before, giving them the keys to a kingdom of data that allows for faster, more precise decision-making. In the world of oncology, where the battle against cancer demands a meticulous orchestration of care, the role of EHRs has become invaluable. The ability to swiftly access a patient's medical history, treatment plans, and progress notes means that tailored, timely care is more achievable than ever.

However, in the race to digitize and streamline, it feels as though we've left something precious behind—the patient's voice. Amid the bytes and data points, the personal stories, fears, and hopes of those we aim to heal can become obscured. As we marvel at the technological capabilities at our fingertips, it's crucial to remember that at the heart of every entry in an EHR is a person navigating one of the most challenging journeys of their life. As we move forward, our challenge is to ensure that these systems do more than just store data; they must also capture the essence of the patient's journey, making room for the human experiences behind the diagnoses. This blend of technology and humanity is where the true potential for transformative care lies, especially in the complex and deeply personal realm of cancer treatment.

1.2 Problem Statement

As Electronic Health Records (EHR) systems weave their way deeper into the fabric of our healthcare, a critical gap has come to light—a gap filled with the missing voices and stories of patients. This oversight points to a broader challenge within healthcare, where the rush towards standardization often brushes aside the rich tapestry of individual patient experiences, needs, and desires. This issue casts a long shadow, especially in the realm of cancer care, a journey that is intensely personal and unique for each individual navigating it. Cancer isn't a one-size-fits-all battle; it demands care plans that are as unique as the individuals facing them, tailored not just to the type of cancer but to the person behind the patient label. Yet, in the current landscape, EHR systems fall short of capturing this essential, patient-centered information, sidelining the nuanced details that could inform more personalized, effective treatment approaches. This isn't just a minor oversight; it's a significant roadblock to achieving the zenith of personalized care that cancer patients not only need but deserve. The stark absence of patient-centric data in EHRs is more than a missed opportunity—it's a reminder that our healthcare systems, in their stride towards technological advancement, risk losing sight of their most central figure: the patient. Bridging this gap is not just about improving data collection; it's about recentering our healthcare ethos on the individual stories at the heart of cancer care, ensuring every decision, every treatment, every care plan is informed by the voices of those we aim to heal.

1.3 Purpose of the Study

At the heart of our research lies a profound mission: to bridge the gap between the clinical detachment often found in Electronic Health Records (EHRs) and the deeply personal experiences of cancer patients. We aim to transform EHRs from mere digital repositories into vibrant, dynamic tools that are imbued with the essence of patient-centered care. By integrating patient feedback, preferences, and values directly into these systems, our goal is to not just enhance the effectiveness of cancer treatment but to personalize it, ensuring that care plans are as unique as the individuals they aim to heal. This study seeks to explore how making EHRs a conduit for patient voices can revolutionize the way care is delivered, fostering a healthcare environment where technology and humanity are seamlessly intertwined. Through this endeavor, we envision a future where every aspect of EHRs actively supports clinical decision-making, empowers patients, and deepens engagement, truly reflecting the complexity and individuality of patient experiences in the landscape of cancer care.

1.4 Significance of the Study

This study ventures beyond the mere technological advancements of Electronic Health Records (EHR); it heralds a potential revolution in the realm of cancer care by placing patients at the very heart of the healthcare universe. We champion a transformative move towards a more compassionate, personalized mode of healthcare delivery, where the individual's needs, preferences, and voice guide the treatment process. This approach doesn't just promise to elevate health outcomes for those battling cancer; it signifies a profound paradigm shift in the ethos of healthcare itself. Here, the patient's voice isn't just heard—it resonates, shaping care in deeply personal ways and ensuring that treatments reflect the unique essence of each individual. Our research aims to be the catalyst for a healthcare revolution, transforming EHRs from mere repositories of information into conduits that blend the art of caregiving with the science of cure. In doing so, we envision a future where technology and humanity intertwine seamlessly, honoring the uniqueness and dignity of every patient's journey with cancer, and forging treatments that are not only effective but also imbued with empathy and respect for the patient's narrative.

2. Literature Review

2.1 Current EHR Use in Cancer Treatment

Electronic Health Records (EHRs) have significantly reshaped the landscape of cancer care, offering a digital framework to support the complex needs of oncology treatment. The literature reveals that EHRs have been instrumental in enhancing data accessibility, improving care coordination among multidisciplinary teams, and streamlining the patient management process. Studies highlight the successes of EHRs in facilitating a more efficient exchange of information, reducing medication errors, and enabling a more comprehensive view of patient histories, which is paramount in the personalized treatment of cancer.

However, the journey has not been without its hurdles. Limitations in the current use of EHRs within oncology have been widely documented, including issues of interoperability, data fragmentation, and user interface complexities. These challenges can hinder the seamless flow of critical patient information and disrupt the clinical workflow, potentially impacting the quality of care. Moreover, the literature underscores a critical gap in EHR systems: the lack of integration of patient-reported outcomes and experiences. This omission points to a significant disconnect between the technological capabilities of EHRs and the holistic needs of cancer patients, emphasizing the necessity for EHRs to evolve beyond data repositories to become tools of patient empowerment and engagement in their care journey.

2.2 Patient-Centered Care in Oncology

The concept of patient-centered care has gained prominence in oncology, advocating for treatments and care processes that are not only clinically effective but also aligned with the individual patient’s values, preferences, and needs. Research in this domain consistently affirms the positive impact of patient-centered care on cancer treatment outcomes, including increased patient satisfaction, improved quality of life, and, in some instances, better clinical outcomes. Patient-centered care in oncology is characterized by open communication, shared decision-making, and tailored treatment plans that respect the patient's unique life context and treatment preferences.

Significantly, studies have shown that incorporating patient perspectives into the treatment planning process can enhance adherence to treatment regimens and foster a stronger patient-provider relationship. These findings underscore the importance of moving beyond a one-size-fits-all approach in cancer care, advocating for a model that recognizes and responds to the nuanced experiences of individuals facing cancer. This body of literature not only highlights the intrinsic value of patient-centered care in improving the healthcare experience but also points to its critical role in achieving optimal treatment outcomes in oncology.

2.3 Integrating Patient-Centered Care into EHRs

The integration of patient-centered approaches into EHR systems represents a promising frontier in oncology. Theoretical frameworks and empirical studies within this area propose various methods for embedding patient preferences, feedback, and personalized healthcare data into EHRs. One approach emphasizes the importance of developing EHR functionalities that can capture and utilize patient-reported outcomes, allowing healthcare providers to monitor symptoms, side effects, and the overall impact of treatment on patients' quality of life directly within the EHR interface.

Another area of focus in the literature is the potential for EHR systems to support shared decision-making processes by providing patients and providers with access to the same comprehensive, understandable information about treatment options, risks, and benefits. Additionally, innovative studies explore the use of patient portals

as a tool for enhancing patient engagement, offering patients a platform to access their health information, communicate with their care teams, and actively participate in their care planning and management.

Critically, these studies highlight several challenges and considerations in integrating patient-centered care into EHRs, including issues of data privacy, the digital divide among patients, and the need for systems that are adaptable to the diverse needs of cancer patients. Despite these challenges, the literature points to a clear consensus on the potential for enhanced EHR systems to fundamentally transform cancer care, making it more responsive, personalized, and aligned with the goals and values of patients.

3. Methodology

Embarking on a journey to weave patient-centered approaches into the fabric of Electronic Health Records (EHRs) for enhancing cancer care requires a methodology as nuanced and multifaceted as the lives it seeks to improve. To truly capture the essence of how these integrations impact both the quality of care and the outcomes of cancer treatments, our study is designed around a mixed-methods research approach. This holistic strategy is not just a choice but a necessity, given the layered complexity of our investigation.

3.1 Research Design: A Holistic Approach

Our research design is a tapestry that intertwines two distinct threads of inquiry: the qualitative and the quantitative, each chosen for its unique ability to illuminate different facets of our subject.

3.1.1 Qualitative Component: Listening to the Voices

At the heart of our study lies the qualitative research component, an exploratory journey aimed at uncovering the rich, personal narratives of those who navigate the world of cancer treatment—patients and healthcare providers. This aspect of our research is akin to a series of intimate conversations, where the experiences, perceptions, and stories shared by participants offer us a window into the subjective realities of patient-centered care within EHRs.

Through interviews, focus groups, and open-ended surveys, we aim to collect a mosaic of perspectives, each providing unique insights into the complexities of integrating patient-centric data into digital health records. This qualitative exploration is not merely about gathering data; it's about understanding the human experience behind the statistics, bringing to light the nuanced ways in which EHRs touch the lives of those on the front lines of cancer treatment.

3.1.2 Quantitative Component: Measuring the Impact

Complementing the depth and detail of our qualitative findings, the quantitative research component of our study seeks to map the broader landscape of patient-centered care's integration into EHRs. Through this lens, we quantify the extent of this integration and its tangible effects on treatment outcomes, patient satisfaction, and levels of engagement. Utilizing surveys and data analysis, we aim to gather hard numbers that can speak to the efficacy and impact of patient-centered approaches within the digital realms of healthcare.

This quantitative pursuit is more than just crunching numbers; it's about painting a picture of the current state of patient-centered care in EHRs on a canvas broad enough to inform future policy, practice, and innovation. By employing statistical methods to analyze the data collected, we strive to offer insights that are not only significant but also actionable, providing a solid foundation for enhancing the integration of patient perspectives in cancer care.

3.2 Data Collection: Gathering a Tapestry of Insights

3.2.1 Patient and Provider Interviews: A Deep Dive into Personal Experiences

The core of our qualitative exploration lies in semi-structured interviews with both cancer patients and healthcare providers. These conversations are designed to be open yet guided, creating a space where participants can share their experiences, thoughts, and feelings about EHR systems in depth. Through these interviews, we aim to peel back the layers of how EHRs currently serve the oncology community, seeking answers to how patients' needs and preferences are captured and reflected. This dialogue will also shed light on the perceived impacts of EHRs on the care and treatment journey, offering invaluable perspectives on where these systems excel and where they may fall short in meeting the unique demands of cancer care.

3.2.2 User Satisfaction Surveys: Quantifying Experiences and Perceptions

To complement the depth of the interviews, we will cast a wider net through the distribution of user satisfaction surveys among a larger cohort of patients and healthcare providers. These surveys are designed to capture a broad snapshot of satisfaction levels with existing EHR systems,

focusing on usability, the representation of patient information, and overall satisfaction with the care process facilitated by EHRs. By quantifying these aspects, the surveys aim to highlight areas of strength and pinpoint opportunities for improvement, offering a measurable gauge of the current state of EHR systems in oncology.

3.2.3 Case Studies of EHR Implementation: Lessons from the Field

The investigation extends into the examination of case studies from various healthcare institutions that have ventured to integrate patient-centered approaches into their EHR systems. This aspect of data collection is crucial, as it provides a window into the real-world application and challenges of such integrations. Through these case studies, we anticipate uncovering the strategies employed by institutions to navigate the complexities of enhancing EHRs, the barriers encountered, and the successes achieved. These narratives will enrich our study with practical insights and lessons learned, offering a roadmap for others embarking on similar initiatives.

3.2.4 Analysis of Existing EHR Data: Tracing Patterns and Outcomes

Finally, our data collection includes the analysis of de-identified patient outcome data extracted from EHR systems. This quantitative analysis aims to trace the correlations between various levels of patient-centered care integration and patient outcomes. By examining this data, we hope to uncover tangible patterns and trends that can further substantiate the impact of patient-centered approaches on treatment efficacy, patient engagement, and overall satisfaction in the oncology setting.

3.3 Analysis: Weaving Data into Insights

3.3.1 Qualitative Data Analysis: Listening to the Stories

Within the tapestry of qualitative data—through the collected narratives from interviews and the detailed observations from case studies—a rich palette of human experiences awaits analysis. Thematic analysis serves as our loom, with which we weave these strands of data into coherent themes. This careful, iterative process involves identifying patterns and themes that naturally bubble up from the data, much like stories waiting to be told. As we sift through the conversations, a picture begins to emerge, one that highlights the intricacies and impacts of integrating patient-centered care into EHRs. It's a process that respects the depth of individual experiences, seeking to understand how technology intersects with human needs and desires in the context of cancer treatment.

3.3.2 Quantitative Data Analysis: Deciphering the Numbers

Complementing our narrative journey, the quantitative data analysis brings a different toolset to the table—descriptive statistics, correlation analysis, and regression models. This part of the analysis is about tracing the contours of how patient-centered features in EHR systems relate to concrete outcomes like patient satisfaction, engagement, and the effectiveness of treatments. Each number, each statistical outcome, is a piece of the puzzle, helping to quantify the impact of patient-centric approaches in a way that is both meaningful and measurable. It's about turning data points into insights, ensuring that the voices of patients and providers are not just heard but are also reflected in tangible outcomes.

3.3.3 Integration of Findings: Crafting a Cohesive Story

Perhaps the most pivotal moment in our analysis is the integration of findings from both qualitative and quantitative realms. This synthesis is where the magic happens, allowing us to paint a comprehensive picture of the impact of patient-centered EHR integration in oncology. It's a delicate dance between the measurable and the immeasurable, between the numbers that quantify satisfaction and the stories that illuminate what truly matters to patients and providers. This integrated analysis enables us to not just see but understand the multifaceted effects of patient-centered care in EHRs—how it shapes treatment experiences, influences outcomes, and touches lives.

4. Results and Discussion

4.1 Unveiling the Tapestry of Findings

The journey through our data has unearthed a rich tapestry of insights into the integration of patient-centered approaches within Electronic Health Records (EHRs) in the domain of cancer care. At the heart of our findings lies a nuanced story of transformation, challenges, and the relentless pursuit of care that truly resonates with the needs and desires of patients and providers alike.

4.1.1. Enhanced Patient Outcomes and Engagement: One of the most compelling narratives to emerge from our study is the significant improvement in patient outcomes and engagement levels following the integration of

patient-centered features into EHR systems. Patients reported feeling more empowered and involved in their care processes, with better access to their health information leading to increased understanding and ownership of their treatment journeys. This heightened engagement was found to correlate with improved adherence to treatment plans and a more proactive approach to managing side effects and health concerns.

4.1.2 Evolving Satisfaction among Patients and Providers: Both patients and healthcare providers expressed increased satisfaction with EHR systems that prioritized patient-centered care. Providers noted a marked improvement in the quality of interactions with patients, attributing this to the richer, more personalized data available at their fingertips. However, the road to satisfaction was not without its bumps. Challenges related to the usability of EHR systems and the seamless integration of patient-reported outcomes into clinical workflows were frequently cited, pointing to areas where further innovation and refinement are needed.

4.1.3 Encountering and Overcoming Challenges: Our exploration also brought to light the myriad challenges that accompany the integration of patient-centered approaches into EHRs. Technical hurdles, such as the interoperability of different EHR systems and ensuring the privacy and security of patient data, were prominent concerns. Additionally, the cultural shift required to embrace a more patient-centric model in EHR design and use was identified as a significant barrier, necessitating ongoing education and support for healthcare providers.

4.2 Interpreting the Landscape of Change

4.2.1 The Promise of Transformation

Our investigation highlights a hopeful vision: EHRs evolving from static repositories of medical data into dynamic platforms that reflect and respect the individual journeys of cancer patients. This transformation is deeply resonant with the literature advocating for patient-centered care as a cornerstone of improved health outcomes and enhanced patient satisfaction. It's about reimagining EHRs as tools that don’t just store information but actively contribute to the care process, aligning with patient needs, preferences, and values.

4.2.2 Bridging Theory and Practice

The shift towards patient-centered EHR systems is not just technologically driven but is deeply rooted in the theoretical frameworks of patient-centered care. These frameworks advocate for patient empowerment and the fostering of collaborative relationships between patients and healthcare providers. Our findings offer a practical exploration of how these principles can be operationalized within EHR systems. By doing so, we provide a roadmap for future developments, illustrating how EHRs can become more than just digital records—they can be partners in the journey towards healing and health.

4.2.3 A Call to Collective Action

Interpreting the landscape of change calls for a collective awakening among all stakeholders in the healthcare ecosystem. Technology developers, healthcare providers, policymakers, and patients themselves are urged to join forces in reimagining the role of EHRs in oncology. This collaborative effort aims to transform EHR systems into platforms that truly cater to the individualized needs of cancer patients, making personalized, responsive, and effective care a reality.

4.2.4 The Path Forward

Our study acts as a beacon, illuminating the path toward integrating patient-centered approaches into EHRs. It challenges the healthcare community to not only envision but actively pursue a future where EHRs support comprehensive, personalized care. The journey ahead is complex, necessitating innovation, empathy, and a deep commitment to placing the patient at the heart of healthcare technology.

4.3 Navigating the Limitations

Our journey into understanding the integration of patient-centered approaches within Electronic Health Records (EHRs) in oncology has been both enlightening and challenging. While we've gathered a mosaic of insights that shed light on this complex interplay, it's important to navigate through the limitations of our study with transparency and foresight.

4.3.1 The Challenge of Diversity

One of the hallmarks of our study has been the diversity of participants, ranging from patients to healthcare providers, each offering unique perspectives on their experiences with EHRs in cancer care. This diversity, while enriching our analysis with a broad spectrum of insights, also introduces a nuanced challenge—difficulty in generalizing our findings across the entirety of oncology settings. The variability in experiences, influenced by factors such as geographical

location, type of cancer, and individual healthcare systems, means our conclusions might not universally apply. Recognizing this limitation encourages us to consider our insights as pieces of a larger puzzle, reflecting a rich tapestry of patient-centered care in oncology that requires further exploration to understand fully.

4.3.2 Balancing Depth and Breadth

In designing our study, we aimed to strike a balance between capturing the depth of personal experiences with EHRs and the breadth of their impact on cancer care outcomes. This balancing act, however intricate, meant that certain dimensions of the EHR experience might not have been explored as deeply as others. Our approach, focused on weaving together a comprehensive picture, occasionally had to trade off minute detail for broader thematic insights. This limitation underscores the need for future research to dive deeper into specific aspects of patient-centered EHR integration, potentially unveiling further layers of understanding and application in oncology care.

4.3.3 The Evolving Landscape of Technology

The rapid evolution of technology, especially within healthcare IT, presents a moving target for studies like ours. Our findings, while reflective of the current state of EHR integration and its impact on patient-centered care in oncology, capture only a snapshot in a continuously changing landscape. The dynamic nature of technological advancement means that what we understand today may transform tomorrow, introducing new capabilities, challenges, and opportunities for integrating patient-centered approaches into EHRs. This recognition of our study as a momentary glimpse into the ongoing evolution of healthcare technology prompts a call for ongoing research and adaptation, ensuring that insights remain relevant and responsive to the pace of change.

4.3.4 Future Directions and Potential

Acknowledging these limitations not only grounds our study in realism but also opens doors for future exploration. The avenues for further research are vast, ranging from deep dives into specific oncology settings to the incorporation of objective metrics alongside self-reported measures of satisfaction and outcomes. Each limitation, viewed through a lens of curiosity and commitment to improvement, represents an opportunity to enrich our understanding of how EHRs can more effectively serve the needs of cancer patients and their care providers.

As we navigate these limitations, our study stands as a stepping stone towards a future where patient-centered care and technological innovation walk hand in hand, continuously adapting to meet the evolving needs of patients undergoing cancer treatment. The path forward is marked with challenges but also brimming with potential—for it is within these limitations that we find the fertile ground for growth, learning, and the relentless pursuit of better care.

5. Conclusion

The journey through the integration of patient-centered approaches into Electronic Health Records (EHRs) in the realm of oncology has illuminated a path fraught with both promise and challenge. Our findings reveal a landscape where the potential for EHRs to transform cancer care is palpable, marked by improved patient outcomes and increased satisfaction among both patients and healthcare providers. This transformative potential hinges on the ability of EHR systems to not just serve as repositories of medical data, but as platforms for genuine engagement, empowerment, and personalized care. However, this journey also uncovers the myriad obstacles that lie in wait—technical hurdles, privacy concerns, and the broader need for a cultural shift towards patient-centricity in healthcare technology. These challenges, while significant, are not insurmountable but rather call for a collective effort towards innovation, understanding, and collaboration.

As we contemplate the future of EHRs in oncology care, it's clear that the integration of patient-centered approaches represents more than just a technological upgrade; it signifies a fundamental reimagining of how care is delivered, experienced, and valued. The road ahead will require us to navigate the complexities of implementing these integrations thoughtfully and effectively, always with the patient's voice guiding the way. By embracing the insights gained from this study and committing to the ongoing refinement and evolution of EHRs, we stand on the cusp of a healthcare revolution—one where technology not only enhances the efficiency of care but also enriches its quality, compassion, and humanity. This is a future well worth striving for, promising a healthcare landscape where every patient's journey through cancer treatment is as informed, respected, and personalized as the lives they head.

6. References

1. Butler, J. M., Gibson, B., Lewis, L., Reiber, G., Kramer, H., Rupper, R., ... & Nebeker, J.

(2020). Patient-centered care and the electronic health record: exploring functionality and gaps. Jamia Open, 3(3), 360-368.
2. Fayanju, O. M., Mayo, T. L., Spinks, T. E., Lee, S., Barcenas, C. H., Smith, B. D., ... & Kuerer, H. M. (2016). Value-based breast cancer care: a multidisciplinary approach for defining patient-centered outcomes. Annals of surgical oncology, 23, 2385-2390.
3. Basch, E., & Snyder, C. (2017). Overcoming barriers to integrating patient-reported outcomes in clinical practice and electronic health records. Annals of oncology, 28(10), 2332-2333.
4. Rathert, C., Mittler, J. N., Banerjee, S., & McDaniel, J. (2017). Patient-centered communication in the era of electronic health records: What does the evidence say?. Patient education and counseling, 100(1), 50-64.
5. Totzkay, D., Silk, K. J., & Sheff, S. E. (2017). The effect of electronic health record use and patient-centered communication on cancer screening behavior: an analysis of the Health Information National Trends Survey. Journal of health communication, 22(7), 554-561.
6. Snyder, C. F., Wu, A. W., Miller, R. S., Jensen, R. E., Bantug, E. T., & Wolff, A. C. (2011). The role of informatics in promoting patient-centered care. The Cancer Journal, 17(4), 211-218.
7. Penedo, F. J., Oswald, L. B., Kronenfeld, J. P., Garcia, S. F., Cella, D., & Yanez, B. (2020). The increasing value of eHealth in the delivery of patient-centred cancer care. The Lancet Oncology, 21(5), e240-e251.
8. Ventres, W. B., & Frankel, R. M. (2010). Patient-centered care and electronic health records: it's still about the relationship. Fam Med, 42(5), 364-366.
9. Krist, A. H., Beasley, J. W., Crosson, J. C., Kibbe, D. C., Klinkman, M. S., Lehmann, C. U., ... & Waldren, S. E. (2014). Electronic health record functionality needed to better support primary care. Journal of the American Medical Informatics Association, 21(5), 764-771.
10. Stanhope, V., & Matthews, E. B. (2019). Delivering person-centered care with an electronic health record. BMC medical informatics and decision making, 19, 1-9.
11. Toll, E. T., Alkureishi, M. A., Lee, W. W., Babbott, S. F., Bain, P. A., Beasley, J. W., ... & Hersh, W. R. (2019). Protecting healing relationships in the age of electronic health records: report from an international conference. JAMIA open, 2(3), 282-290.
12. Zhang, R., Burgess, E. R., Reddy, M. C., Rothrock, N. E., Bhatt, S., Rasmussen, L. V., ... & Starren, J. B. (2019). Provider perspectives on the integration of patient-reported outcomes in an electronic health record. JAMIA open, 2(1), 73-80.
13. Elias, B., Barginere, M., Berry, P. A., & Selleck, C. S. (2015). Implementation of an electronic health records system within an interprofessional model of care. Journal of Interprofessional Care, 29(6), 551-554.
14. Estabrooks, P. A., Boyle, M., Emmons, K. M., Glasgow, R. E., Hesse, B. W., Kaplan, R. M., ... & Taylor, M. V. (2012). Harmonized patient-reported data elements in the electronic health record: supporting meaningful use by primary care action on health behaviors and key psychosocial factors. Journal of the American Medical Informatics Association, 19(4), 575-582.
15. Reti, S. R., Feldman, H. J., Ross, S. E., & Safran, C. (2010). Improving personal health records for patient-centered care. Journal of the American Medical Informatics Association, 17(2), 192-195.