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The Impacts of Treatment Summaries on Patient-Centered Communication and Quality of Care for Cancer Survivors

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Abstract

As cancer survival rates continue to improve, the need for effective survivorship care has become increasingly important. Treatment summaries, which provide a detailed record of a patient's cancer diagnosis, treatment history, and follow-up care plan, play a crucial role in enhancing patient-centered communication and improving the quality of care for cancer survivors. This review explores the impact of treatment summaries on healthcare coordination, patient engagement, and long-term health outcomes. Treatment summaries facilitate seamless communication between oncology specialists, primary care providers, and patients, ensuring continuity of care and reducing gaps in follow-up management. They empower cancer survivors with a clearer understanding of their medical history, treatment effects, and necessary preventive measures, leading to improved adherence to follow-up care and healthier lifestyle choices. Additionally, these summaries help alleviate patient anxiety by providing structured and accessible health information, fostering greater trust and collaboration between patients and healthcare providers. Despite these advantages, challenges remain in the widespread implementation of treatment summaries. Variability in documentation, integration with electronic health records (EHR), provider workload, and patient health literacy are key barriers to their effective use. Addressing these challenges requires standardized documentation practices, digital health solutions, and provider education programs to optimize the benefits of treatment summaries in survivorship care. This review also highlights case studies of successful implementation in cancer care centers and discusses best practices for maximizing their impact. Findings suggest that when effectively utilized, treatment summaries contribute to a more coordinated, patient-centered approach to survivorship care, ultimately improving health outcomes and quality of life for cancer survivors. Moving forward, healthcare systems must prioritize policies that support the integration and accessibility of treatment summaries to ensure comprehensive, high-quality survivorship care.

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1. Introduction

Cancer survivorship has become an increasingly important aspect of oncology care as advances in early detection and treatment have led to higher survival rates (Adegoke *et al.*, 2022) ^[1]. However, surviving cancer presents a complex set of challenges for patients, as they often face a range of long-term health effects resulting from both the disease and its treatments. These survivors may experience physical, psychological, and emotional challenges that necessitate specialized, ongoing care and support. This

explores the concept of cancer survivorship, the importance of patient-centered communication in oncology, the role of treatment summaries, and the overall objective of enhancing survivorship care.

Cancer survivorship refers to the phase of care that begins after the completion of primary cancer treatment, encompassing the long-term follow-up and the management of health issues arising from both the cancer and the treatments used to address it (Avwioroko, 2023) ^[5]. As the population of cancer survivors continues to grow, the focus of care has shifted from merely achieving remission to optimizing the survivor's long-term health. Survivors may experience late effects such as cardiovascular complications, secondary cancers, hormonal imbalances, and chronic pain, which can persist for years, requiring specialized care and management. Survivorship also includes psychological concerns, such as anxiety, depression, and issues related to body image, which can affect the patient's quality of life and overall well-being (Nnagha *et al.*, 2023). These challenges underscore the need for a coordinated, comprehensive approach to cancer survivorship that addresses both the physical and psychosocial aspects of recovery. Effective communication between healthcare providers and patients is a cornerstone of cancer care, especially in the context of survivorship (Obi *et al.*, 2023). Patient-centered communication is vital for ensuring that survivors are actively involved in decisions regarding their ongoing care and that their unique needs and concerns are addressed. In oncology, this means engaging patients in discussions about potential late effects, providing clear explanations of follow-up care plans, and ensuring survivors feel supported throughout the transition from active treatment to long-term follow-up care (Avwioroko, 2023) ^[6]. Studies have shown that when healthcare providers prioritize patient-centered communication, survivors are better equipped to manage their health and navigate complex treatment regimens, leading to improved health outcomes and satisfaction with care. In addition, strong communication can help establish a trustful relationship, making it easier for patients to disclose concerns about physical, emotional, or financial burdens. One of the key tools in managing cancer survivorship is the treatment summary, which provides a comprehensive record of the patient's cancer diagnosis, treatment protocols, and any relevant clinical information that may affect long-term care. Treatment summaries are invaluable for both patients and healthcare providers, as they serve as a detailed reference for monitoring late effects and informing future medical decisions. By summarizing critical details such as chemotherapy regimens, radiation therapy doses, and surgeries performed, these documents help ensure continuity of care as survivors transition to primary care providers or specialists for long-term follow-up (Efobi *et al.*, 2023) ^[17]. Additionally, treatment summaries enable healthcare providers to make informed decisions about screening for secondary cancers and managing comorbid conditions that may arise due to the cancer treatment (Uwumiro *et al.*, 2023) ^[47]. In this way, treatment summaries are crucial for reducing the risks of late effects and improving the overall quality of care for cancer survivors.

The primary objective of this review is to examine the evolving landscape of cancer survivorship and to highlight strategies that can enhance long-term care for survivors. Specifically, the review aims to explore the importance of patient-centered communication in oncology, how it can be

integrated into survivorship care plans, and the pivotal role of treatment summaries in facilitating effective long-term care. By focusing on these areas, the review seeks to provide a comprehensive understanding of the needs of cancer survivors and the best practices for addressing these needs through coordinated care models. Additionally, this will emphasize the significance of personalized, holistic care that recognizes the unique challenges faced by survivors and strives to improve their quality of life. Ultimately, this review aims to underscore the importance of integrating patient-centered approaches into survivorship care and to encourage healthcare systems to implement strategies that promote comprehensive, coordinated care for cancer survivors. Through these efforts, we can ensure that the growing population of cancer survivors receives the support they need to lead healthy, fulfilling lives post-treatment.

2. Methodology

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology was utilized to evaluate the impacts of treatment summaries on patient-centered communication and the quality of care for cancer survivors. A systematic review was conducted to identify relevant studies published on this topic, aiming to provide a comprehensive understanding of how treatment summaries influence communication between healthcare providers and cancer survivors, as well as the broader effects on the overall quality of care.

The review was initiated by developing a clear research question: "What are the impacts of treatment summaries on patient-centered communication and the quality of care for cancer survivors?" The inclusion criteria were defined to encompass studies that addressed the role of treatment summaries in oncology, focusing on their use in improving communication between healthcare providers and cancer survivors and the potential benefits for patient care. Both quantitative and qualitative studies were considered to provide a holistic view of the topic. Studies were excluded if they did not directly relate to cancer survivorship or if they did not include specific information on treatment summaries. A comprehensive search strategy was implemented across several databases, including PubMed, Scopus, and Web of Science, with search terms related to cancer survivorship, treatment summaries, patient-centered communication, and quality of care. The search was limited to studies published in English and conducted in the past two decades to ensure relevance and timeliness. After duplicates were removed, the titles and abstracts of the identified studies were screened for eligibility. Full-text articles were then assessed for inclusion based on predefined criteria.

Data extraction involved recording key information from each study, including the study design, sample size, outcomes measured, and the specific impacts of treatment summaries on communication and care quality. The extracted data were analyzed to identify patterns and trends in how treatment summaries contributed to enhancing communication between healthcare providers and cancer survivors. Moreover, the review focused on understanding the relationship between treatment summaries and improved outcomes, such as better management of late effects, enhanced follow-up care, and overall satisfaction with care.

The methodological quality of the included studies was assessed using standard tools appropriate for each study type. For randomized controlled trials, the Cochrane Risk of Bias

tool was employed, while for observational and qualitative studies, the Joanna Briggs Institute tools were used. These quality assessments helped ensure the reliability and validity of the findings, and any discrepancies in data extraction were resolved through discussion and consensus between reviewers.

Data synthesis was conducted through a narrative synthesis approach, as heterogeneity across the studies prevented a meta-analysis. Key themes and outcomes were categorized, and a thematic analysis was performed to highlight the role of treatment summaries in improving patient-centered communication and quality of care. The findings were synthesized in a way that allowed for a clear understanding of the benefits and challenges of using treatment summaries in oncology care, particularly for cancer survivors transitioning to long-term care. A discussion of the implications of the findings for clinical practice and future research was included. The review identified gaps in the literature, such as the need for more large-scale randomized controlled trials to establish the definitive impact of treatment summaries on long-term cancer survivor outcomes. The study concluded by highlighting the importance of treatment summaries as a tool for enhancing communication and improving the quality of care for cancer survivors, emphasizing the need for further integration of these documents into clinical oncology practice to optimize survivorship care.

2.1 Understanding treatment summaries

A treatment summary is a comprehensive document created at the end of a patient's primary cancer treatment that summarizes the essential details of their cancer diagnosis, the treatment regimen administered, and the recommendations for ongoing follow-up care (Filetti *et al.*, 2019; Silvestris *et al.*, 2020) [18]. Treatment summaries are primarily designed to provide both the patient and the healthcare team with a clear and concise record of the patient's treatment journey. Their purpose is to ensure continuity of care as the patient transitions from active cancer treatment to long-term survivorship care. In doing so, treatment summaries help address the various health needs that may arise after treatment, including monitoring for potential late effects, managing comorbidities, and reducing the risk of secondary cancers. The importance of treatment summaries lies in their ability to promote coordinated care, facilitate communication between oncologists and primary care providers, and empower cancer survivors to actively participate in their ongoing health management. These documents serve as a roadmap for survivors and healthcare professionals to navigate complex post-treatment care and enable informed decisions about surveillance, screening, and management of potential health complications.

A well-constructed treatment summary includes several key components that provide a comprehensive overview of the patient's cancer diagnosis and treatment. These components can be grouped into three broad categories: diagnosis, treatment details, and follow-up care. The summary begins with detailed information about the cancer diagnosis, including the cancer type, stage, grade, and any molecular or genetic markers that may be relevant for future treatment or surveillance. This section may also include a brief history of the disease progression and the specific treatments the patient received. Accurate diagnostic information is essential for monitoring the patient's risk of recurrence or secondary

cancers, as it can influence the surveillance strategy used during follow-up (Likhacheva *et al.*, 2020) [31]. The treatment section outlines the therapies the patient underwent during their active treatment phase. This includes chemotherapy regimens, radiation doses, immunotherapy, surgery, or any other treatments utilized. Specific details such as drug names, doses, schedules, and any side effects experienced are crucial. The treatment summary should also provide information about the timing and sequencing of treatments, as well as any adjustments made during the course of therapy. One of the most important sections of the treatment summary is the follow-up care plan. This section includes recommendations for long-term surveillance, such as regular imaging, lab tests, and screenings for recurrence or secondary cancers. It should also provide guidance on lifestyle changes, symptom monitoring, and managing any long-term side effects of treatment. Additionally, the follow-up plan may include referrals to specialists, recommendations for vaccinations, and suggestions for psychosocial support. Survivorship care plans aim to mitigate the risk of long-term health issues and improve the survivor's overall quality of life (Vaz-Luis *et al.*, 2022) [48].

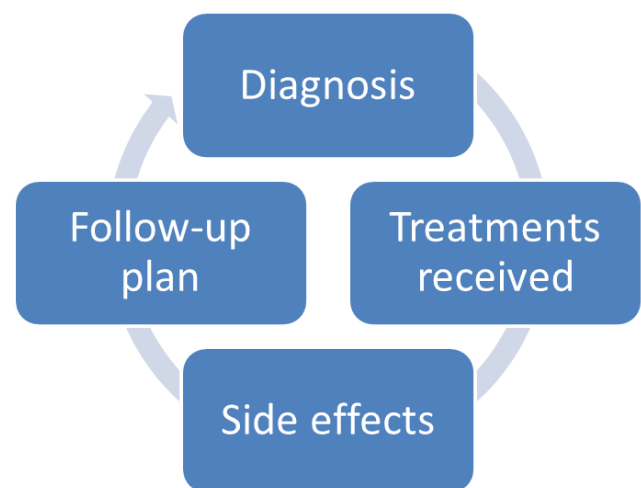


Fig 1: Key components in treatment summaries

Several organizations have developed standardized guidelines to ensure the uniformity, completeness, and effectiveness of treatment summaries. Two key organizations in this area are the American Society of Clinical Oncology (ASCO) and the National Comprehensive Cancer Network (NCCN). American Society of Clinical Oncology (ASCO), guidelines for treatment summaries focus on ensuring that cancer survivors receive consistent, high-quality care. ASCO has created a template for treatment summaries that includes key elements such as cancer diagnosis, treatment modalities, and follow-up plans. ASCO's goal is to make treatment summaries accessible to both patients and healthcare providers, enabling the seamless transfer of information across different care settings. By promoting standardized templates, ASCO aims to ensure that all cancer survivors, regardless of location or healthcare provider, have access to comprehensive, coordinated care (Hunter *et al.*, 2020) [25]. National Comprehensive Cancer Network (NCCN), has developed guidelines that provide a framework for cancer care across multiple stages, including the post-treatment survivorship phase. Their survivorship guidelines include recommendations for the creation of treatment summaries,

emphasizing the need for detailed documentation of the cancer diagnosis, treatment history, and follow-up care. The NCCN guidelines also promote a collaborative approach to care, ensuring that survivors receive ongoing assessments for physical and mental health, as well as social support services. In particular, NCCN's guidelines focus on ensuring that treatment summaries are specific, accurate, and relevant to the patient's unique needs, facilitating the delivery of personalized care. Standardized treatment summaries are essential for maintaining high-quality care and promoting continuity in cancer treatment. They help address the challenges faced by cancer survivors as they transition to long-term care and ensure that no critical health issues are overlooked. By adhering to established guidelines, healthcare providers can improve the efficiency and effectiveness of survivorship care, reduce the risk of late effects, and enhance the overall quality of life for cancer survivors (Jefford *et al.*, 2022) ^[28].

Treatment summaries play a crucial role in the ongoing care of cancer survivors. By providing a comprehensive record of the patient's cancer diagnosis, treatment regimen, and follow-up plan, these documents help ensure continuity of care, promote patient-centered communication, and empower survivors to actively manage their health. Standardized guidelines from organizations like ASCO and NCCN are essential for promoting uniformity in treatment summaries, ensuring that cancer survivors receive the highest standard of care, and facilitating the long-term monitoring of health outcomes (Holcombe *et al.*, 2021) ^[23]. With the growing population of cancer survivors, treatment summaries are an indispensable tool in enhancing survivorship care and improving health outcomes.

2.2 Patient-Centered communication in cancer care

Patient-centered communication (PCC) refers to an approach in healthcare that prioritizes the needs, values, and preferences of the patient while fostering an open and empathetic dialogue between the patient and their healthcare provider. In cancer care, where complex treatment plans and emotional distress are common, effective communication is particularly crucial. This approach emphasizes not only the clinical aspects of care but also the psychological, social, and emotional dimensions of the patient's experience. It involves listening to the patient's concerns, understanding their personal values and preferences, providing clear and understandable information, and engaging them as active partners in their care decisions. The importance of patient-centered communication in cancer care cannot be overstated. Cancer is a life-threatening condition that often requires complex treatments and long-term follow-up (Hudson *et al.*, 2021) ^[24]. In such circumstances, patients must make informed decisions about their care, which can significantly impact their quality of life and treatment outcomes. Effective communication fosters trust, reduces anxiety, and ensures that patients fully understand their diagnosis, treatment options, and potential side effects. Moreover, it enhances patient satisfaction and can lead to improved adherence to treatment regimens, better clinical outcomes, and higher levels of psychological well-being. When patients feel heard and understood, they are more likely to actively participate in their care, leading to a more positive overall healthcare experience.

Despite its importance, patient-centered communication in cancer care faces several challenges. One of the most

significant barriers is the complexity of medical terminology. Healthcare providers often use technical language that may be difficult for patients to understand, especially when discussing intricate details about the cancer type, stage, or treatment protocols (Cherif *et al.*, 2020) ^[13]. This communication gap can leave patients feeling confused, overwhelmed, or excluded from important decisions about their care. Additionally, time constraints in clinical settings can hinder effective communication. Oncologists and other healthcare providers often have limited time to discuss treatment options, answer patient questions, and address emotional concerns. As a result, the depth of communication may be compromised, and patients may not receive all the information they need to make informed decisions about their care. Another challenge is emotional distress. Cancer patients often experience high levels of anxiety, fear, and uncertainty about their diagnosis and prognosis. This emotional burden can make it difficult for them to process complex information or ask questions. Healthcare providers must be trained not only in medical knowledge but also in emotional intelligence to navigate sensitive conversations with patients effectively (Foster and McCloughen, 2020) ^[20]. If a healthcare provider fails to acknowledge the emotional aspect of cancer care, it can strain the patient-provider relationship and lead to less effective decision-making. Moreover, cultural differences can further complicate communication. Patients from diverse cultural backgrounds may have different beliefs about illness, treatment, and healthcare. These differences can affect their willingness to engage in certain treatments, adhere to medical advice, or even understand the healthcare system. Providers must be culturally competent and sensitive to these variations to ensure that communication is effective and respectful of the patient's background.

Treatment summaries are a vital tool in improving patient-centered communication, particularly in cancer care. A treatment summary is a comprehensive document that outlines the patient's cancer diagnosis, the treatments they have received, and the recommendations for follow-up care. By consolidating crucial information, treatment summaries serve as a clear and accessible resource for both patients and healthcare providers (Penberthy *et al.*, 2022) ^[37]. The role of treatment summaries in enhancing communication is multifaceted. First, they provide a clear record of treatment history, which helps both patients and healthcare providers track progress and understand the treatments administered. This is particularly valuable for cancer survivors, who may need to consult different healthcare professionals or switch between care providers over time. By ensuring that treatment information is consistent and comprehensive, treatment summaries contribute to continuity of care and facilitate informed decision-making. Treatment summaries also foster better information-sharing between patients and their healthcare teams. Patients may have difficulty remembering all the details of their diagnosis and treatment plan, especially after undergoing intensive therapies. A treatment summary offers a concrete reference for discussions with providers and serves as a tool for patients to take ownership of their care. By having a document that outlines key details about their cancer journey, patients are empowered to ask informed questions and engage in discussions about their follow-up care, lifestyle changes, or potential side effects. This empowerment improves the patient's ability to participate in treatment decisions, leading to better decision-making aligned with their values and preferences. Moreover,

treatment summaries are valuable in promoting shared decision-making. In cancer care, treatment options often involve trade-offs between efficacy and side effects. A treatment summary helps patients understand the rationale behind treatment choices, the risks and benefits of each option, and the expected outcomes. This transparency supports shared decision-making, where both the patient and healthcare provider collaborate to select the most appropriate treatment plan based on the patient's goals and preferences (Damman *et al.*, 2020) ^[15].

Additionally, treatment summaries improve care coordination. For cancer patients, care is often provided by a multidisciplinary team that includes oncologists, surgeons, radiologists, and other specialists. A treatment summary provides a centralized document that ensures all members of the healthcare team are on the same page regarding the patient's diagnosis and treatment history. This reduces the risk of miscommunication, minimizes duplication of tests or treatments, and enhances the overall quality of care. Patient-centered communication is fundamental to effective cancer care, ensuring that patients are well-informed, supported, and actively involved in their treatment decisions. Despite challenges such as medical jargon, emotional distress, and time constraints, healthcare providers must strive to overcome these barriers and foster clear, empathetic communication with patients. Treatment summaries play a critical role in this process by enhancing information sharing, supporting shared decision-making, and improving care coordination (Fiorillo *et al.*, 2020) ^[19]. By adopting patient-centered communication practices and utilizing tools like treatment summaries, cancer care teams can enhance patient outcomes, promote long-term survivorship, and improve the overall healthcare experience.

2.3 Impact of treatment summaries on quality of care

The impact of treatment summaries on the quality of care in cancer survivorship is multifaceted, with one of the most significant benefits being the improvement in coordination among healthcare providers. Cancer care is inherently multidisciplinary, with patients often receiving treatment from various specialists, including oncologists, radiologists, surgeons, and palliative care teams. These healthcare providers need a clear, detailed understanding of the patient's treatment history, which is where treatment summaries come into play.

Treatment summaries serve as a centralized, comprehensive record that consolidates all the crucial details about the patient's diagnosis, the treatments they have undergone, and the plans for follow-up care. This centralized document ensures that every healthcare provider involved in the patient's care is well-informed and aligned in their approach. Similarly, a detailed treatment summary can help specialists identify and avoid unnecessary procedures or interventions, thus minimizing the risk of errors, reducing redundancy, and improving care efficiency. Moreover, treatment summaries enhance care continuity, particularly as patients transition from active treatment to survivorship care. Cancer survivors often require long-term monitoring for potential late effects or recurrence, and treatment summaries provide the necessary information for these ongoing assessments (Dahl *et al.*, 2021) ^[14]. By ensuring that all involved providers are aware of the patient's complete medical history, treatment summaries foster a team-based approach to care, improving the overall management of the patient's health long after

cancer treatment has concluded.

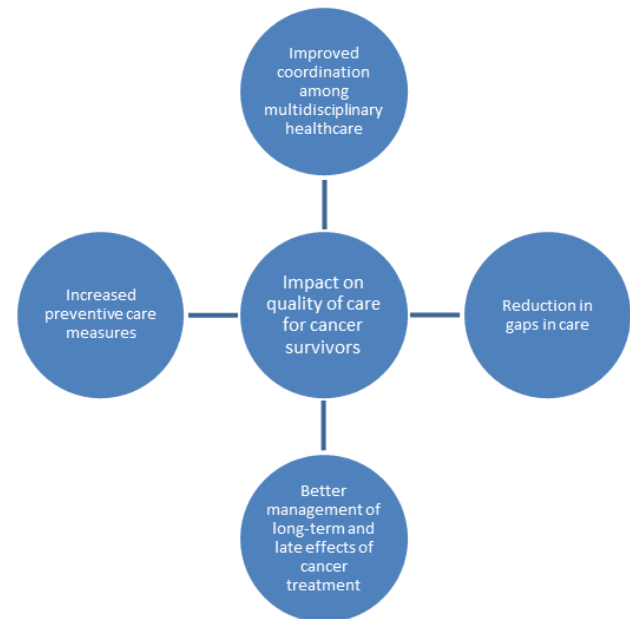


Fig 2: Impact on quality of care for cancer survivors

Another key impact of treatment summaries on quality of care is the enhancement of patient understanding and engagement in survivorship care. Cancer survivors often face the challenge of navigating complex medical information, particularly when it comes to follow-up care, potential late effects of treatment, and long-term health monitoring. Treatment summaries provide a valuable tool to bridge the gap in understanding by offering patients a clear, easily accessible overview of their treatment history and future care plans. By having a concrete document that outlines their diagnosis, treatment modalities, and recommended follow-up procedures, cancer survivors can better understand their health needs and make informed decisions about their care (Seeber *et al.*, 2019) ^[40]. This understanding empowers patients to actively participate in their own health management, leading to increased engagement with their care plans. When patients have a thorough grasp of the rationale behind their treatments and the expected outcomes, they are more likely to adhere to follow-up schedules and take proactive steps to prevent or manage potential long-term health issues. Furthermore, treatment summaries serve as an important resource for communication between patients and healthcare providers. Survivors can refer to the summary during appointments, which can help direct conversations about ongoing care and concerns. With a treatment summary in hand, patients are better equipped to ask informed questions, clarify uncertainties, and make decisions that align with their preferences and values.

Cancer treatment is often associated with significant emotional distress, as patients face uncertainty regarding their prognosis and the potential for recurrence. Even after the completion of active treatment, many survivors continue to experience anxiety and uncertainty about their health, often related to their treatment history and future care. Treatment summaries play a crucial role in alleviating some of this anxiety by providing a clear, structured summary of their treatment journey and a plan for future monitoring (Marks *et al.*, 2019) ^[33]. By laying out the steps of the patient's treatment, including medications, radiation, surgeries, and

their respective outcomes, treatment summaries offer survivors a sense of clarity and reassurance. Survivors can review the summary to understand what treatments they have received, the rationale behind these treatments, and the expected timeline for follow-up. This transparency helps mitigate the unknowns that often cause distress, enabling survivors to move forward with confidence in their survivorship care. Furthermore, treatment summaries can serve as a tool to identify and address potential late effects of cancer treatments. Many cancer treatments have long-term consequences, such as cardiovascular issues, fertility concerns, or second cancers. Having these potential risks outlined in the treatment summary helps survivors feel more prepared and less anxious about what to expect. This proactive approach to survivorship care empowers individuals to make informed choices about managing these risks, improving their sense of control over their health. Cancer survivors are at an increased risk for recurrence, secondary cancers, and other health complications as a result of their treatments. Regular follow-up appointments, screenings, and preventive measures are essential to detect issues early and prevent long-term health problems. However, many survivors struggle with adherence to these appointments and preventive measures due to lack of information or misunderstanding of their long-term health risks.

Treatment summaries directly address this issue by providing a clear and personalized care plan for the survivor. By listing follow-up procedures (such as imaging, lab tests, or screenings) and preventive recommendations, treatment summaries act as a reference for both the patient and their healthcare team (Davidson *et al.*, 2021) ^[16]. With this document, patients are reminded of the necessary steps to maintain their health after treatment, which helps improve adherence to follow-up care. Moreover, the summary outlines the timing of recommended screenings and potential interventions, which is crucial for managing long-term risks. For example, if a patient has received radiation therapy that increases the risk of cardiovascular disease, their treatment summary will include follow-up guidelines to monitor heart health. This targeted care plan can help prevent adverse outcomes and improve the survivor's overall quality of life. By increasing awareness and providing concrete steps for follow-up care, treatment summaries empower cancer survivors to take an active role in managing their health long after the completion of their initial cancer treatment (Kim *et al.*, 2020) ^[29]. This enhances not only their medical outcomes but also their overall experience of survivorship, leading to better quality of care and long-term well-being.

The impact of treatment summaries on the quality of care for cancer survivors is profound, influencing various aspects of their medical journey. By improving coordination among healthcare providers, enhancing patient understanding and engagement, reducing anxiety, and promoting adherence to follow-up care, treatment summaries serve as a critical tool in enhancing survivorship care. As cancer survivorship continues to grow, treatment summaries will play an increasingly important role in ensuring that survivors receive comprehensive, coordinated, and personalized care.

With continued efforts to standardize and improve these tools, treatment summaries will further contribute to the delivery of high-quality care for cancer survivors worldwide (Smith *et al.*, 2020) ^[33].

2.4 Barriers to Effective Use of Treatment Summaries

Treatment summaries are essential tools for improving cancer survivorship care by ensuring that patients receive coordinated, informed, and proactive follow-up care. They offer a comprehensive overview of a patient's cancer diagnosis, treatment, and long-term care plan. Despite their proven benefits in enhancing care coordination, reducing anxiety, and improving patient outcomes, several barriers hinder the effective use of treatment summaries. These barriers include variability in documentation and standardization issues, accessibility and health literacy challenges, integration with electronic health records (EHR), and provider workload and time constraints.

One of the primary barriers to the effective use of treatment summaries is the lack of standardization in how they are documented and shared across healthcare systems. Different institutions, oncology practices, and healthcare providers may use diverse formats, terminologies, and methods for documenting treatment details. This variability makes it difficult for healthcare providers to interpret and use treatment summaries consistently, especially when patients move between different care settings or specialists. Standardized guidelines for documenting treatment summaries, such as those from the American Society of Clinical Oncology (ASCO) or the National Comprehensive Cancer Network (NCCN), are crucial to ensuring that treatment summaries are comprehensive, accurate, and usable across healthcare systems (Sanft *et al.*, 2019; Riba *et al.*, 2019) ^[39]. However, the absence of a universal standard for treatment summary documentation creates discrepancies in what information is included, which in turn can lead to incomplete or inaccurate records. This lack of uniformity can diminish the effectiveness of treatment summaries and hinder care continuity.

Another significant barrier to the effective use of treatment summaries is accessibility and the challenge of health literacy among cancer survivors. While treatment summaries are essential for patients to understand their care plan and engage in their own health management, not all patients can access or comprehend the information provided. Many cancer survivors may face challenges due to a lack of digital literacy or difficulty understanding complex medical terminology (Hasannejadasl *et al.*, 2022) ^[21]. This is particularly problematic for individuals from low-income backgrounds, those without access to electronic devices, or elderly populations who may not be accustomed to navigating digital health records. For these patients, the effectiveness of treatment summaries is diminished because they may not fully understand their treatment history, follow-up requirements, or potential long-term health risks. Addressing health literacy challenges is essential for ensuring that treatment summaries are useful for all patients. Efforts to simplify language, use clear visuals, and provide patient education on how to use treatment summaries can help

mitigate these barriers.

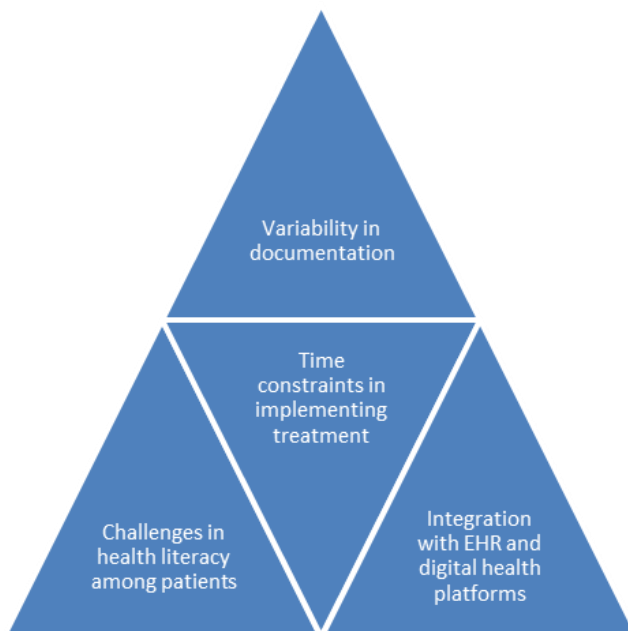


Fig 3: Barriers to effective use of treatment summaries

The integration of treatment summaries with Electronic Health Records (EHR) remains another significant barrier. While EHR systems have revolutionized healthcare documentation by providing a centralized platform for patient information, many EHR systems still struggle to seamlessly integrate treatment summaries. This disconnect can lead to fragmented information, where treatment details from oncology providers may not be readily available to primary care providers or other specialists involved in a patient's care. The lack of interoperability between different EHR systems and the absence of a unified platform for sharing treatment summaries create gaps in communication, which can negatively impact the continuity and quality of care. For treatment summaries to be truly effective, they must be part of an integrated digital healthcare ecosystem, allowing providers to easily access, update, and share information across disciplines (Stephanie and Sharma, 2020) ^[44]. Increased efforts to standardize EHR systems and improve data interoperability are needed to overcome this barrier and enhance the utility of treatment summaries.

Provider workload and time constraints represent a practical barrier to the effective use of treatment summaries. Healthcare providers, especially oncologists, are often overwhelmed by their clinical responsibilities, which can make it difficult to consistently generate and update treatment summaries for every patient. In fast-paced healthcare environments, where providers are under pressure to meet patient demands and clinical targets, preparing detailed treatment summaries may be perceived as an additional, time-consuming task. Moreover, the documentation of treatment summaries requires accurate and timely entry of complex medical data, which can add to the provider's already heavy workload. This challenge is exacerbated by the need for coordination between multiple specialists, each contributing information to the summary. To overcome this barrier, healthcare institutions must recognize the importance of treatment summaries in improving patient outcomes and allocate sufficient time and resources for providers to generate, update, and communicate these documents.

Incorporating standardized templates, improving the efficiency of data entry, and fostering team collaboration could help reduce the time burden on providers and facilitate the timely creation of comprehensive treatment summaries. The barriers to the effective use of treatment summaries in cancer care are complex and multifaceted, including variability in documentation, accessibility challenges, integration with EHR systems, and provider workload (Bosserman *et al.*, 2021) ^[19]. These barriers can hinder the utility of treatment summaries, limiting their potential to improve care coordination, enhance patient engagement, and support better long-term outcomes for cancer survivors. Addressing these challenges requires a multifaceted approach, including standardization of treatment summary formats, efforts to improve patient education and health literacy, enhanced integration with EHR systems, and ensuring that healthcare providers have the resources and time needed to produce comprehensive, accurate summaries. Overcoming these barriers will be critical in ensuring that treatment summaries are effectively used in cancer survivorship care, thereby improving the overall quality of care and long-term health outcomes for patients.

2.5 Case Studies and real-world applications

Treatment summaries are critical tools in cancer survivorship care, providing patients and healthcare providers with essential information about cancer treatment, follow-up care, and potential long-term health risks. The integration of treatment summaries into clinical practice has proven to enhance communication, coordination, and patient engagement (Newman *et al.*, 2021) ^[34]. Various cancer centers worldwide have adopted treatment summaries, with real-world applications demonstrating their significant impact on patient outcomes, satisfaction, and overall quality of care. Case studies of these initiatives offer valuable insights into the benefits and challenges of implementing such systems in clinical practice.

Several cancer centers have incorporated treatment summaries into their survivorship care programs to improve patient care. One example is the implementation of treatment summaries at the Memorial Sloan Kettering Cancer Center (MSKCC), which began incorporating comprehensive treatment summaries for survivors in the early 2000s. The center's program includes detailed treatment histories, including chemotherapy regimens, radiation doses, surgeries performed, and follow-up care plans. These summaries are created and reviewed at key points during treatment and are provided to patients at the end of active cancer treatment. Similarly, the University of California, San Francisco (UCSF) has integrated treatment summaries into its long-term survivorship clinics, ensuring that both oncology specialists and primary care providers have access to a unified, comprehensive record of each patient's treatment. These institutions have also implemented structured follow-up protocols to assess the impact of treatment summaries on clinical outcomes and patient satisfaction. In the United Kingdom, the NHS Health Check program utilizes treatment summaries for cancer patients, aiming to provide a comprehensive view of their diagnosis, treatment history, and potential side effects (Warrington *et al.*, 2019) ^[49]. This program, part of a broader cancer care initiative, ensures that cancer survivors receive personalized follow-up care, including regular monitoring for potential late effects of cancer treatment, such as cardiovascular disease or secondary

cancers.

The introduction of treatment summaries in cancer care has demonstrated measurable benefits in improving patient outcomes and satisfaction. In the case of MSKCC, research has shown that cancer survivors who receive treatment summaries are more likely to engage in follow-up care and be proactive about their health. Patients report feeling more informed about their treatment plans, long-term health risks, and the importance of preventive measures. This knowledge empowers patients to make more informed decisions about their health, leading to improved adherence to follow-up appointments, screenings, and lifestyle changes. At UCSF, treatment summaries have helped facilitate better coordination between oncology providers and primary care physicians. By providing a clear and concise record of a patient's treatment history, primary care providers can offer more personalized and effective care, particularly when managing long-term or late effects of cancer treatment (Jain *et al.*, 2019) ^[26]. In turn, this has contributed to improved health outcomes, such as better management of cardiovascular risk factors in survivors of chemotherapy or radiation therapy. Additionally, treatment summaries have been associated with lower levels of patient anxiety and uncertainty, as survivors feel more confident in understanding their post-treatment care plans (Swoboda *et al.*, 2020) ^[45]. Studies show that when patients have access to clear and concise treatment summaries, they report higher levels of satisfaction with their healthcare and express greater trust in their providers. This satisfaction is linked to enhanced emotional well-being, which can improve overall quality of life.

Real-world applications of treatment summaries have provided valuable lessons on how to optimize their implementation and use. One key takeaway from programs at MSKCC and UCSF is the importance of standardization in the creation and delivery of treatment summaries. Standardized formats ensure that the summaries are comprehensive, clear, and consistent, helping to reduce the likelihood of errors or missing information. This standardization also ensures that all healthcare providers involved in the patient's care whether oncology specialists, primary care physicians, or other healthcare professionals receive the same accurate and up-to-date information (Busch *et al.*, 2019) ^[10]. Another important lesson is the necessity of patient education. Successful programs have demonstrated that simply providing a treatment summary is not enough; healthcare providers must also educate patients on how to use the summaries. For example, survivors must understand how to interpret the information, including follow-up care instructions, potential side effects, and the importance of regular screenings. Educational resources such as printed guides, online portals, or dedicated survivorship care teams can help patients better utilize treatment summaries. The integration of treatment summaries into Electronic Health Records (EHR) is a crucial aspect of ensuring seamless communication among care providers. Case studies have shown that when treatment summaries are easily accessible within EHR systems, they enhance coordination and reduce gaps in care. For instance, treatment summaries integrated into the EHR allow primary care providers to quickly access relevant treatment information when a cancer survivor presents for routine care, ensuring a holistic approach to the patient's health. The implementation of treatment summaries in cancer care has demonstrated significant benefits for both

patients and healthcare providers. Case studies from institutions like Memorial Sloan Kettering Cancer Center, UCSF, and the NHS Health Check program show that treatment summaries improve patient engagement, satisfaction, and health outcomes. These real-world applications highlight the importance of standardization, patient education, and EHR integration in optimizing the use of treatment summaries. By addressing these key factors, healthcare providers can enhance survivorship care, ensuring that cancer survivors receive the comprehensive, personalized care they need to thrive post-treatment.

The landscape of cancer care has evolved significantly, with treatment summaries becoming an essential tool for enhancing patient outcomes, improving coordination among healthcare providers, and fostering patient engagement (Alcaraz *et al.*, 2020) ^[3]. However, there remain several challenges in ensuring their optimal use across cancer centers and healthcare systems. As the number of cancer survivors continues to rise globally, future directions and recommendations focus on enhancing the standardization and integration of treatment summaries, training healthcare providers, implementing effective patient education strategies, and establishing policies that improve cancer survivorship care (Campbell *et al.*, 2019; Mao *et al.*, 2022) ^[12].

One of the foremost challenges in the effective use of treatment summaries is the lack of consistent standardization across healthcare settings. Standardizing the content, format, and delivery mechanisms of treatment summaries can ensure that all relevant information is captured comprehensively and consistently. This includes critical data such as cancer diagnosis, treatment protocols, potential late effects, follow-up care plans, and recommendations for preventive screenings. The establishment of standardized guidelines, as seen with organizations like the American Society of Clinical Oncology (ASCO) and the National Comprehensive Cancer Network (NCCN), is a positive step toward consistency. Digital integration into electronic health records (EHR) systems is also crucial for enhancing the accessibility and utility of treatment summaries (Tapuria *et al.*, 2021) ^[46]. By ensuring that treatment summaries are easily accessible within EHR platforms, healthcare providers across disciplines can quickly access and share relevant information, improving coordination and care continuity. As technology continues to advance, the integration of artificial intelligence (AI) to automate and tailor treatment summary creation could further enhance their utility and reduce the burden on healthcare providers (Ahmed *et al.*, 2020; Busnatu *et al.*, 2022) ^[2].

For treatment summaries to be effective, healthcare providers must be adequately trained not only in their creation but also in their use. Training should focus on ensuring that providers understand how to interpret and apply the information contained in treatment summaries to guide follow-up care and management of late effects. Additionally, training should equip providers with the skills to communicate effectively with patients about their treatment summaries, helping them understand the importance of follow-up care and encouraging patient involvement in decision-making (Alsbrook *et al.*, 2022) ^[4]. One area of focus in provider training is the integration of multidisciplinary teams, ensuring that all healthcare providers oncologists, primary care physicians, and specialists are aligned in their understanding and approach to cancer survivorship care. Effective collaboration

and communication can be supported by clearly documented treatment summaries, reducing the risk of fragmented care (Jaksa *et al.*, 2021) ^[27].

While healthcare providers play a key role in using treatment summaries effectively, patient education and engagement are equally critical. Cancer survivors must understand how to utilize their treatment summaries, including how to track follow-up care, identify signs and symptoms of potential health issues, and seek timely interventions when necessary (Høeg *et al.*, 2019) ^[22]. Healthcare providers should ensure that patients are given appropriate education materials alongside their treatment summaries, such as guides explaining the content of the summary and how to interpret it (Bastable *et al.*, 2019) ^[8]. Moreover, patient portals and mobile health applications could serve as additional platforms for providing survivors with easy access to their treatment summaries and related educational resources. Personalized care plans that align with a patient's individual needs, risks, and preferences can increase engagement and empower patients to take control of their long-term health. Incorporating patient feedback into the process of treatment summary development can also foster a sense of partnership in care, leading to better outcomes and increased satisfaction. Policy change plays a crucial role in the future of cancer survivorship care. Governments and healthcare organizations should consider adopting policies that promote the standardization and integration of treatment summaries in cancer care. Policy efforts should focus on ensuring that treatment summaries are universally available for cancer survivors and that all healthcare providers have access to them (Yabroff *et al.*, 2019) ^[3]. Additionally, health insurance policies should be adjusted to cover the provision of treatment summaries and follow-up care services, recognizing their importance in improving survivorship outcomes. Government bodies and healthcare organizations should also prioritize funding for research into cancer survivorship care, with a focus on identifying best practices for the use of treatment summaries. Policies that encourage collaboration between oncology care teams, primary care providers, and community health services will help reduce fragmentation in care and enhance long-term health outcomes. Furthermore, creating policies that promote continued training and professional development for healthcare providers in survivorship care will help maintain high standards of care.

The future of cancer survivorship care hinges on the continued improvement and optimization of treatment summary usage. By focusing on enhancing standardization and digital integration, investing in healthcare provider training, employing effective patient education strategies, and enacting supportive policy changes, the healthcare system can ensure that cancer survivors receive the comprehensive, coordinated care they need (Sheikh *et al.*, 2021; Kraus *et al.*, 2021) ^[41]. These efforts will ultimately reduce health disparities, enhance patient outcomes, and contribute to a more sustainable and effective cancer survivorship model.

3. Conclusion

In summary, the effective use of treatment summaries in cancer care has been shown to significantly enhance patient outcomes, improve coordination among healthcare providers, and empower patients to take an active role in their long-term health management. Key findings from the research indicate

that treatment summaries provide a comprehensive record of a patient's cancer diagnosis, treatment details, and follow-up care plan, ensuring that all relevant information is readily available for both the patient and their care team. This, in turn, reduces the risk of fragmented care and improves continuity of treatment post-cancer therapy.

The importance of treatment summaries in patient-centered care cannot be overstated. They facilitate informed decision-making by both patients and healthcare providers, allowing for better communication, reducing patient anxiety, and promoting adherence to follow-up care. Furthermore, treatment summaries support the identification of late effects, which is crucial for long-term survivorship and the prevention of recurrence or new health issues. By standardizing and digitizing these summaries, healthcare systems can enhance the overall quality of cancer care and ensure that survivors receive timely and appropriate interventions.

Looking ahead, the future outlook for improving cancer survivorship care is promising, with advancements in digital integration, healthcare provider training, and patient engagement strategies. As the number of cancer survivors continues to rise, there is a growing need for policies and practices that promote the widespread use of treatment summaries. With continued research, improved technological tools, and more robust training programs for healthcare providers, the quality of care for cancer survivors will continue to evolve, ultimately leading to improved health outcomes, reduced healthcare costs, and enhanced quality of life for cancer survivors.

4. Reference

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