JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH
ISSN: 2576-0017
2024, VOL 7, NO S10

Strategies for Screening and Managing Cancer in Family Practice in Saudi Arabia

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Abstract:
In Saudi Arabia, family practitioners play a critical role in the screening and management of cancer, necessitating the implementation of comprehensive strategies tailored to the country's specific epidemiological trends and healthcare system. Effective screening programs should focus on high-incidence cancers, including breast, colorectal, and lung cancers, which have increasingly affected the Saudi population. Family physicians can utilize guidelines provided by national health authorities to conduct regular screenings, promote awareness, and educate patients about risk factors and early signs of cancer. Integrating community health initiatives can facilitate access to cancer screenings in rural and underserved areas, ensuring that early detection efforts reach all segments of the population. Managing cancer within a family practice setting involves a multidisciplinary approach, emphasizing collaboration between various healthcare professionals. Family physicians should be equipped with updated knowledge on treatment protocols and palliative care options, allowing them to provide empathetic support to patients undergoing cancer treatment. Additionally, fostering strong communication with oncologists and mental health specialists enables a more holistic management plan that addresses both medical and psychological needs. Continued professional development and training in cancer care for family practitioners will enhance their ability to deliver quality care, ultimately improving patient outcomes in Saudi Arabia.
Keywords: cancer screening, family practice, Saudi Arabia, high-incidence cancers, breast cancer, colorectal cancer, lung cancer, community health initiatives, multidisciplinary approach, communication, palliative care, patient education, healthcare professionals.

Introduction:

The burden of cancer represents a significant public health challenge globally, and Saudi Arabia is no exception. As the country undergoes rapid socio-economic transformation, the prevalence and incidence of various cancers have risen, necessitating effective strategies for screening, management, and prevention within the framework of family practice. The integration of cancer care into primary health care is essential, given that family physicians are often the first point of contact for patients and have a pivotal role in early detection, diagnosis, and ongoing management of cancer [1].

In recent decades, cancer has emerged as a leading cause of morbidity and mortality in Saudi Arabia. According to the Saudi Cancer Registry, the most common cancers diagnosed in the country include breast, colorectal, lung, and prostate cancers. Factors contributing to the rising incidence of cancer include changes in lifestyle, dietary habits, environmental exposures, and an aging population. The Saudi Arabian government has recognized the need to address this alarming trend, leading to the incorporation of cancer prevention and control strategies in its national health policy [2].

Family physicians serve a crucial function in cancer care through preventive services, early detection, and coordination of care. Their ongoing relationships with patients enable them to identify risk factors and symptoms that might otherwise go unnoticed, promoting timely referrals to specialists. Furthermore, family practice encompasses a holistic approach to healthcare that includes not just treatment but also supportive care for patients and families coping with cancer. Given the unique sociocultural dynamics of Saudi society, family physicians are well-positioned to engage patients in discussions about cancer risk and to tailor screening and management strategies to meet their needs [3].

Effective cancer screening strategies are fundamental in reducing cancer morbidity and mortality. In Saudi Arabia, the National Comprehensive Cancer Control Plan emphasizes the importance of screening programs, particularly for high-incidence cancers such as breast and cervical cancers. For instance, breast cancer screening recommendations advocate for mammography for women aged 40 and older, with annual or biennial screenings depending on individual risk factors. Additionally, the Saudi guidelines endorse Pap smear screenings for early detection of cervical cancer, targeting women in specific age groups [4].

However, despite these guidelines, several barriers hinder the effective implementation of screening programs. Factors such as lack of awareness, cultural stigma, and limited access to healthcare services, especially in rural areas, can adversely impact participation in screening initiatives. Family physicians play a crucial role in overcoming these barriers by educating their patients about the necessity of screenings, addressing misconceptions, and providing culturally sensitive care that encourages increased participation [5].

Once a cancer diagnosis is made, the family physician plays a pivotal role in the management and follow-up of the patient. Effective management strategies encompass a multidisciplinary approach that embraces symptom management, psychosocial support, and coordination with oncologists and other healthcare professionals. Family practitioners should be equipped to manage common cancer-related symptoms, such as pain, fatigue, and emotional distress, thereby improving patients' quality of life during treatment [6].

Additionally, the management of chronic diseases in cancer patients is essential. Many individuals with cancer also suffer from concurrent chronic conditions, such as diabetes and hypertension, requiring integrated care strategies. Family physicians must adopt a patient-centered approach that encompasses the management of both cancer and comorbidities, fostering a comprehensive care model that addresses the whole patient [7].

Current Guidelines and Recommendations for Cancer Screening:

Cancer remains one of the leading causes of morbidity and mortality worldwide, prompting healthcare organizations to establish guidelines for early detection through screening. Early detection of cancer can significantly improve treatment outcomes and survival rates [8].

Cancer screening refers to the process of testing for cancer in individuals who do not have any symptoms of the disease. The primary goal of screening is to detect cancer at an early stage when

it is more likely to be treated successfully. Screening tests vary by cancer type and can include physical examinations, blood tests, imaging studies, and biopsies. The effectiveness of screening programs is evaluated based on their ability to reduce cancer mortality, improve quality of life, and minimize the risks associated with false positives and overdiagnosis [9].

General Principles of Cancer Screening Guidelines

The development of cancer screening guidelines is informed by several key principles:

1. **Evidence-Based Research**: Screening recommendations are grounded in robust clinical research and epidemiological data that demonstrate the benefits and risks of screening tests]10].
2. **Target Population**: Guidelines typically identify specific populations that would benefit most from screening, often based on age, sex, family history, and other risk factors.
3. **Risk-Benefit Analysis**: Each screening test undergoes a risk-benefit analysis to weigh the potential benefits of early detection against the risks of false positives, unnecessary procedures, and psychological distress.
4. **Cost-Effectiveness**: Economic considerations play a significant role in the development of screening guidelines, ensuring that resources are allocated efficiently to maximize public health benefits.
5. **Updates and Revisions**: As new research emerges and technologies evolve, screening guidelines are regularly updated to reflect the latest evidence and best practices [10].

Current Guidelines for Specific Cancers

The American Cancer Society (ACS) recommends that women with an average risk of breast cancer begin annual mammograms at age 45, with the option to start screening as early as age 40. Women aged 55 and older can transition to biennial screening if they prefer. Additionally, the ACS advises that women should continue to have regular screenings as long as they are in good health and have a life expectancy of 10 years or more. For women at higher risk (e.g., those with a family history of breast cancer), additional screening modalities such as MRI may be recommended [11].

The U.S. Preventive Services Task Force (USPSTF) provides guidelines for cervical cancer screening, recommending that women aged 21 to 29 undergo Pap smear testing every three years. For women aged 30 to 65, the guidelines suggest either a Pap smear every three years, HPV testing every five years, or a combination of both (co-testing) every five years. Screening should continue until the age of 65, provided that women have had adequate prior screening and are not at high risk for cervical cancer [11].

For colorectal cancer, the USPSTF recommends that adults aged 45 and older undergo regular screening. Various screening options are available, including colonoscopy every ten years, stool-based tests (such as FIT or Cologuard) annually or every three years, and flexible sigmoidoscopy every five years. The choice of screening method should be based on patient preference, availability, and risk factors [12].

The guidelines for prostate cancer screening vary among organizations. The ACS recommends that men aged 50 discuss the potential benefits and risks of prostate-specific antigen (PSA) testing with their healthcare provider. Men at higher risk, such as African American men or those with a family history of prostate cancer, should have this discussion starting at age 45. The decision to screen should be individualized, considering the patient's health status and preferences [12].

The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) for adults aged 50 to 80 who have a significant smoking history (30 pack-years or more) and currently smoke or have quit within the past 15 years. This screening aims to reduce lung cancer mortality among high-risk populations.

While there are no formal screening guidelines for skin cancer, the American Academy of Dermatology encourages regular skin self-examinations and annual skin checks by a dermatologist for individuals at high risk, including those with a history of skin cancer, fair skin, or a family history of melanoma [13].

The implementation of cancer screening guidelines has far-reaching implications for public health. Early detection through screening can lead to timely interventions, reducing the burden of advanced-stage cancer and associated healthcare costs. Furthermore, these guidelines promote health equity by targeting high-risk populations and facilitating access to screening services.

However, challenges remain in the effective implementation of screening programs. Disparities in access to care, socioeconomic factors, and differing levels of health literacy can hinder participation in screening initiatives. Public health campaigns aimed at raising awareness and educating communities about the importance of cancer screening are essential for improving participation rates and ultimately reducing cancer mortality [14].

Barriers to Effective Cancer Screening in Family Practice:

Cancer remains one of the leading causes of morbidity and mortality worldwide. Despite significant advancements in the early detection and treatment of various forms of cancer, barriers to effective cancer screening persist within family practice settings. Understanding these barriers is essential for improving patient outcomes and enhancing the efficacy of cancer screening programs [15].

One of the most significant barriers to effective cancer screening in family practice is systemic in nature. The fragmented healthcare system in many countries often leads to inconsistent access to screening services. Family practitioners may not have the resources or infrastructural support to implement regular screening programs due to limited funding and insurance variability. In the United States, for example, despite the Affordable Care Act mandating coverage for numerous screening services, discrepancies remain in access to care based on insurance status and geographical location [16].

Additionally, time constraints in busy family practice settings often hinder the ability of healthcare providers to discuss screening options with patients comprehensively. Many practitioners face overwhelming patient loads, which can result in abbreviated appointments that prioritize acute care over preventive measures like cancer screenings. This lack of time can lead to missed opportunities for educating patients about the importance of screening or addressing individual patient risk factors, ultimately contributing to lower screening uptake [17].

Education, both for practitioners and patients, plays a crucial role in facilitating effective cancer screening. Many family physicians report feeling inadequately informed about the latest guidelines for cancer screening, such as those from the United States Preventive Services Task Force (USPSTF). In some cases, the rapid evolution of screening technologies and recommendations can make it challenging for practitioners to remain updated. Inadequate knowledge about different screening modalities—such as mammography, colonoscopy, or prostate-specific antigen (PSA) testing—can diminish the likelihood that family practitioners will recommend these tests to patients [18].

Moreover, patients often lack knowledge about cancer risks and the significance of early detection. Misinformation surrounding cancer screening—such as misconceptions about the risks versus benefits or confusion over screening guidelines—can lead patients to forgo necessary tests. Additionally, certain disparities in health literacy can negatively impact patients' understanding of their own health status and the implications of preventive screening. Therefore, both practitioners

and patients require ongoing education about cancer screening to bridge the knowledge gap that affects uptake rates [19].

Sociocultural factors significantly influence patients' willingness to participate in cancer screening. Cultural beliefs and attitudes toward health, illness, disease, and healthcare systems can create barriers to screening. For instance, in certain communities, cultural stigma associated with cancer may foster a reluctance to engage in screening or discussions about cancer risk. Similarly, some populations may have a historical mistrust of the healthcare system, rooted in past injustices, leading to a hesitancy to seek care or participate in screening programs [20].

Socioeconomic factors also play a crucial role. Individuals with lower socioeconomic status may face financial barriers, including the inability to afford copays, deductibles, or transportation costs required to access screening facilities. These financial limitations can deter individuals from seeking timely cancer screening, particularly in low-income communities where access to healthcare facilities is already limited. Furthermore, individuals from marginalized populations may have limited access to accurate information about available screening resources or may be unaware of programs designed to provide free or low-cost screening services [20].

The integration of technology into healthcare has the potential to improve cancer screening rates. However, technological barriers can also complicate the process. For instance, the adoption of electronic health records (EHRs) has been lauded for its ability to streamline patient information and foster communication between providers. Yet, not all family practices are equipped with or trained in utilizing EHRs efficiently for cancer screening outreach. In some cases, inadequate technology or insufficient training can hinder the implementation of reminder systems that prompt patients for screenings based on age, gender, or risk factors [21].

Moreover, the rapid expansion of telehealth services, accelerated by the COVID-19 pandemic, has presented both opportunities and challenges. While telehealth can help increase access to consultations and follow-ups, it may not always facilitate in-person screenings, particularly for procedures that require specialized equipment and physical presence, such as mammograms or colonoscopies. As such, ensuring that patients have access to both virtual and in-person care is essential for overcoming barriers to cancer screening [22].

To address these barriers effectively, several strategies can be employed. Increasing public awareness campaigns aimed at educating both patients and providers about the importance of cancer screening is essential. Collaborations with community organizations and healthcare stakeholders can help disseminate accurate information and foster trust in healthcare services.

Furthermore, enhancing provider education and training on cancer screening guidelines and risk assessment can empower family practitioners to engage in conversations about preventive care with confidence. Continuous professional development programs should be supported by healthcare institutions to ensure that providers stay informed about evolving screening technologies and protocols [23].

Implementing systems-level changes within healthcare practices can also significantly improve screening uptake. For example, enhancing clinic workflows to include routine screening discussions in patient visits or developing automated reminder systems that prompt both patients and providers can lead to more proactive screening approaches. Additionally, addressing financial barriers through policy changes, such as expanding Medicaid eligibility or subsidizing the costs of screenings, can significantly increase access to necessary services [24].

Community-Based Interventions for Improved Access to Screening:

Cancer represents one of the leading causes of morbidity and mortality worldwide, claiming millions of lives each year. Despite significant advances in cancer research, treatment, and

prevention, early detection remains crucial for effectively managing the disease and enhancing survival rates. Despite clear evidence that early screening can save lives, many individuals—especially from underserved populations—face significant barriers to accessing cancer screening services. Community interventions designed to improve access to these services are vital in addressing disparities and fostering a healthier population [25].

Understanding Barriers to Cancer Screening

Before delving into community interventions, it's essential to identify the barriers that hinder access to cancer screening. These obstacles can be classified into several categories, including financial, educational, cultural, and logistical issues [26].

1. **Financial Barriers**: Many individuals lack health insurance or have inadequate coverage that does not fully encompass preventive services. High out-of-pocket expenses, such as co-pays and deductibles, can deter individuals from seeking screenings. Furthermore, low-income populations may prioritize immediate needs over preventive healthcare, resulting in neglected screenings [27].
2. **Educational Barriers**: A lack of knowledge and awareness surrounding the importance of cancer screening can significantly impact individuals' willingness to participate. Educational disparities often lead uninsured and low-income individuals to misunderstand the specific recommendations for screenings or underestimate their risk of cancer, diminishing their likelihood of pursuing these services.
3. **Cultural Barriers**: Cultural beliefs and practices can also play a significant role in influencing health behaviors. Mistrust of the medical system, particularly among marginalized groups, may stem from historical injustices, leading to a reluctance to engage with healthcare services. Additionally, language barriers can complicate communication between patients and healthcare providers, further exacerbating inequities in access [27].
4. **Logistical Barriers**: Geographic location is a critical determinant of access to cancer screening. Rural and low-income urban areas may have insufficient healthcare facilities, lack transportation options, or suffer from long wait times. For individuals without reliable transportation or the ability to take time off work, accessing screening services can be exceedingly challenging [28].

Community Interventions

To address these barriers, effective community interventions can be devised and implemented. These initiatives typically involve outreach programs tailored to the specific needs of the community, utilizing local resources and stakeholders to create a supportive environment for cancer screening [29].

1. **Community Education and Awareness Campaigns**: One of the most effective ways to improve access to cancer screening is by conducting educational outreach that raises awareness about the importance of early detection. Local health departments, community organizations, and cancer advocacy groups can collaborate to disseminate information through workshops, informational booths, and community events. These campaigns should be tailored to the cultural and linguistic needs of the targeted population. Involving local leaders and influencers can enhance credibility and outreach effectiveness, ensuring that the message resonates within the community [29].
2. **Mobile Screening Units**: Mobile health clinics have emerged as a promising intervention to address logistical barriers. By bringing screening services directly to underserved communities, these units reduce transportation hurdles. Mobile screening initiatives can be organized in collaboration with local organizations, utilizing existing community

resources, such as churches, community centers, and schools. These initiatives can provide mammograms, Pap tests, colonoscopies, and other screening services in a convenient and accessible manner [30].

3. **Partnerships with Local Healthcare Providers**: Building partnerships between community organizations and local healthcare providers can create a more integrated approach to cancer screening. Through these collaborative efforts, referral pathways can be established, enabling seamless access to screenings. Moreover, educating healthcare providers about the unique needs of underserved populations can increase their sensitivity to issues that may affect their patients' willingness to seek screenings [31].
4. **Financial Assistance Programs**: Developing programs that provide financial aid or no-cost screening services can help mitigate the economic barriers to access. Several initiatives, such as the National Breast and Cervical Cancer Early Detection Program, provide funding for low-income women to receive vital screening services. Communities can also work with local health systems to create sliding scale payment options or vouchers for uninsured individuals, promoting equity in access [31].
5. **Culturally Competent Care**: Ensuring that cancer screening services are culturally competent is imperative for addressing the diverse needs of various populations. Healthcare providers should receive training in cultural humility and recognition of implicit biases to better understand the perspectives of patients from different backgrounds. When patients feel understood and respected, they are more likely to seek and adhere to recommended screenings [32].
6. **Community Health Workers (CHWs)**: Leveraging community health workers can enhance outreach efforts and build trust within communities. CHWs, who are often members of the communities they serve, can provide tailored education about cancer screenings, navigate healthcare systems, and assist patients in overcoming barriers to access. Their familiarity with community dynamics allows them to adapt practices and messages to resonate with local populations effectively [33].

Measuring Impact and Sustainability

Evaluating the success of community interventions aimed at improving cancer screening access is essential for ensuring the effectiveness of these programs. Metrics such as screening rates, follow-up appointments, and participant feedback can provide valuable insights into the factors that contribute to program success or areas that may require refinement. Moreover, sustaining these initiatives beyond initial funding is crucial. Establishing long-term partnerships with stakeholders, securing ongoing funding from grants or community investors, and integrating successful programs into local healthcare systems can help ensure the continued availability and viability of cancer screening interventions [34].

Role of Family Physicians in Cancer Risk Assessment:

Cancer remains one of the leading causes of morbidity and mortality worldwide, constituting a significant public health challenge. With the increasing burden of cancer, early detection and prevention strategies have gained prominence. Family physicians are uniquely positioned at the forefront of healthcare delivery and play a critical role in cancer risk assessment. Understanding their contributions is essential for recognizing the multifaceted approach necessary for effective cancer prevention and early detection [35].

Cancer risk assessment involves evaluating an individual’s likelihood of developing cancer based on various factors, including genetics, lifestyle choices, and environmental exposures. Family

physicians are often the first point of contact for patients seeking medical advice, making them crucial in identifying those at higher risk of cancer. The evaluation process typically includes gathering a detailed family history, conducting physical examinations, and recommending appropriate screening tests based on identified risks.

A crucial element of cancer risk assessment is the comprehensive evaluation of family history. Family physicians are trained to collect detailed information about an individual's relatives, focusing on the prevalence, age of onset, type of cancer, and outcomes. Genetic predispositions to certain cancers, such as breast, colorectal, and ovarian cancers, can often be identified through familial patterns [36].

For instance, the identification of hereditary syndromes like BRCA mutations in breast cancer can lead to significant changes in a patient's management plan. Family physicians can recommend genetic counseling and testing for individuals with a strong family history, thus facilitating early interventions that can reduce cancer risk.

In addition to genetics, family physicians must also assess lifestyle factors that contribute to cancer risk. Smoking, dietary habits, physical inactivity, and alcohol consumption are established risk factors for various cancers. By engaging in discussions regarding lifestyle changes, family physicians can encourage patients to adopt healthier behaviors that may mitigate their cancer risk [37].

Moreover, environmental exposures—such as radiation, hazardous chemicals, and ultraviolet light—also play a role in cancer development. Family physicians can raise awareness about these risks and educate patients on strategies for reducing exposure, further enhancing risk management [38].

Cancer screening is a fundamental component of cancer prevention strategies. Family physicians are tasked with staying abreast of current screening guidelines for numerous cancers, including breast, cervical, colorectal, and prostate cancers. These guidelines fluctuate based on factors such as age, sex, family history, and individual health status. By personalizing screening recommendations, family physicians can help ensure that patients undergo appropriate evaluations at optimal times [39].

For example, for women with a family history of breast cancer, family physicians may recommend earlier and more frequent mammograms or even MRI screenings. Similarly, for individuals with a family history of colorectal cancer, regular colonoscopies might be initiated earlier than the standard starting age [39].

In certain situations, family physicians may encounter complex cases that require specialized care. When cancer risk is identified, timely referrals to oncologists, genetic counselors, or other specialists become essential. Family physicians play a vital role in coordinating this continuum of care, ensuring that patients receive the necessary evaluations, follow-ups, and interventions.

Additionally, they can act as advocates for their patients, helping to navigate the often-complicated healthcare system. By maintaining continuous communication with specialists, family physicians can ensure that patients are well-informed and receive holistic care [40].

Family physicians are not only responsible for assessing cancer risk but also for educating their patients about cancer prevention. They have the opportunity to offer invaluable information about the importance of vaccinations, such as the HPV vaccine, which can significantly reduce the risk of certain cancers [40].

Educational initiatives led by family physicians can extend outside the clinical setting. By engaging in community outreach programs, they can promote awareness of cancer risk factors, the importance of lifestyle modification, and the significance of regular healthcare visits.

Furthermore, family physicians can advocate for policy changes that improve access to screening and preventive services. Their insights help shape public health messages and initiatives to mitigate cancer risk on a larger scale [41].

Continuing Education and Professional Development

The rapidly evolving landscape of cancer research necessitates that family physicians engage in continuous education. Staying informed about the latest advancements in genetics, screening guidelines, and treatment modalities is crucial for effective cancer risk assessment and management. Continuous professional development ensures that family physicians can provide evidence-based recommendations and foster health literacy among their patients [42].

Multidisciplinary Collaboration in Cancer Management:

Cancer is a complex and multifaceted disease that affects millions of people worldwide. Its treatment often requires a holistic approach integrating various disciplines, including surgery, medical oncology, radiation oncology, pathology, nursing, and psychosocial support, among others [43].

Cancer, characterized by the uncontrolled growth of abnormal cells, presents itself in numerous forms and stages. Each type of cancer demands a specific approach, as its behavior, response to treatment, and prognosis can vary significantly. Given this complexity, no single specialist can possess all the knowledge and skills necessary to address the numerous aspects of cancer care effectively. Multidisciplinary collaboration serves as a foundational approach to bridging this gap, ensuring that patients receive comprehensive and individualized care [43].

Components of Multidisciplinary Teams

A multidisciplinary team (MDT) in cancer management typically includes, but is not limited to:

1. **Medical Oncologists**: Specialists responsible for the pharmacological treatment of cancer, including chemotherapy, targeted therapy, and immunotherapy. They often lead the treatment plan and coordinate with other specialists [44].
2. **Surgeons**: Surgical oncologists perform operations to remove tumors and surrounding affected tissues. Their expertise is crucial in determining whether surgical intervention is appropriate and in assessing the feasibility and timing of surgery in relation to other treatments.
3. **Radiation Oncologists**: These experts utilize high-energy radiation to destroy cancer cells while minimizing damage to surrounding healthy tissue. Their role is pivotal in devising treatment plans that integrate radiation therapy with other modalities.
4. **Pathologists**: Pathologists are responsible for diagnosing cancer by analyzing tissue samples. Their evaluations are essential for determining the specific type and stage of cancer, which guides treatment decisions [44].
5. **Nurses**: Oncology nurses provide essential care and support for patients throughout their treatment journey. They play a critical role in symptom management, education, and emotional support [45] .
6. **Psychosocial Specialists**: Social workers, psychologists, and counselors address the psychological, social, and spiritual needs of patients and their families. They provide emotional support, help patients navigate healthcare systems, and offer resources for financial and social assistance.

7. **Pharmacists**: Clinical pharmacists offer expertise in medication management, ensuring that chemotherapy regimens are appropriate and manageable concerning other medications patients may be taking.
8. **Palliative Care Providers**: These specialists focus on improving the quality of life for patients by managing symptoms and providing support throughout the cancer treatment process, including end-of-life care [45].

Benefits of Multidisciplinary Collaboration

One of the most significant advantages of multidisciplinary collaboration is the ability to offer comprehensive care designed specifically for the individual patient. By involving specialists from various fields, the team can address not only the physical aspects of the disease but also the emotional, psychological, and social challenges faced by the patient. This holistic approach can lead to improved patient satisfaction and quality of life [46].

Collaborative decision-making is a key feature of multidisciplinary teams. By pooling their collective expertise, team members can discuss treatment options and approaches, consider the latest research and innovations, and arrive at a consensus regarding the best possible strategy for the patient. This collaborative environment fosters critical thinking, reduces the risk of oversight, and helps in identifying potential complications and alternative therapies early [46].

A multidisciplinary approach can also streamline cancer care processes, reducing delays in diagnosis and treatment. With regular meetings and effective communication, teams can expedite decision-making and minimize wait times for patients. This integrated model ensures that diagnostic tests are correctly interpreted and that treatment plans are cohesively developed, leading to timely interventions that may improve prognosis and survival rates [46].

Multidisciplinary collaboration encourages ongoing professional development and education among team members. Engaging with professionals from various disciplines exposes clinicians to different perspectives, increasing their knowledge base regarding the intricacies of cancer biology, treatment modalities, and supportive care. This continuous learning environment ultimately enhances the team's ability to provide high-quality care, informed by the latest evidence-based practices [47].

Despite the undeniable benefits, implementing a multidisciplinary approach in cancer management does not come without challenges. Some of the primary obstacles include:

Effective communication is critical for the success of multidisciplinary teams. However, differences in terminology, practices, and priorities among specialists can sometimes lead to misunderstandings. Establishing conscientious communication protocols and fostering a culture of respect and collaboration are essential to overcoming these barriers [47].

The effective functioning of multidisciplinary teams often requires access to resources, including personnel, time, and infrastructure. In some healthcare settings, limitations in resources can hinder the availability of adequate team members or necessitate compromises in patient care.

In many healthcare environments, established hierarchies can sometimes obstruct collaborative efforts. Specialists may have varying degrees of authority, which can lead to disparities in decision-making processes. Cultivating an egalitarian culture and promoting open dialogue is crucial to ensure that all voices are heard and that the collaborative approach remains patient-centered [47].

Palliative Care Approaches in Family Practice Settings:

Palliative care, which prioritizes the quality of life for patients facing serious illnesses, is increasingly recognized as an integral component of cancer care. The integration of palliative care into family practice settings reflects a comprehensive approach to cancer screening and

management, seamlessly combining symptom management, psychosocial support, and disease-specific treatment [48].

Palliative care is a specialized medical care approach aimed at providing relief from the symptoms and stress of serious illnesses such as cancer. Unlike curative treatments that seek to eradicate disease, palliative care emphasizes improving the quality of life for patients and their families, addressing physical, emotional, social, and spiritual challenges. The World Health Organization (WHO) defines palliative care as an approach that improves the quality of life for patients and their families facing life-threatening illness through the prevention and relief of suffering [48].

Family practice settings are uniquely positioned to provide palliative care for cancer patients due to their ongoing relationships with patients and their ability to offer holistic care. Family physicians often serve as the primary care providers for patients diagnosed with cancer, managing not only the diseases but also the associated symptoms and stressors. This continuity of care creates an environment where palliative care can be embedded within cancer screening and management protocols.

The American Cancer Society emphasizes the importance of regular cancer screenings for various age groups and risk populations, as early detection is instrumental in improving outcomes. Family practices are often the first point of contact for patients, making them crucial in promoting awareness of screening guidelines, such as mammograms, colonoscopies, and Pap tests [48].

Incorporating palliative care perspectives into screening processes allows for more tailored patient education and support. Family physicians can discuss the potential outcomes of screening and the implications of findings, including the psychological effects of a cancer diagnosis or the side effects of subsequent treatments. Moreover, understanding patients' goals and preferences can guide decisions surrounding screening practices, especially for those with advanced age or significant comorbidities where the risks of screening may outweigh the benefits [49].

Once a cancer diagnosis is established, effective management of symptoms becomes paramount. Palliative care techniques can greatly enhance the patient's experience throughout the treatment continuum. Common symptoms related to cancer include pain, fatigue, nausea, dyspnea, and psychological distress, all of which can profoundly affect a person's quality of life.

Family physicians play a critical role in symptom management through pharmacological interventions such as analgesics, antiemetics, and corticosteroids, as well as non-pharmacological approaches including counseling, physical therapy, and integrative therapies like acupuncture and massage. Evidence supports the effectiveness of early palliative care consultations, which have been shown to improve both quality of life and potentially extend survival rates for cancer patients [49].

A cancer diagnosis invariably brings emotional turmoil, not only for the patient but also for their families. The psychological impact often includes anxiety, depression, and existential distress. In family practice settings, healthcare providers can identify emotional needs and provide appropriate psychological support or referrals [50].

Palliative care approaches emphasize the importance of understanding the psychological dimensions of cancer care. Integrating mental health screenings into routine visits can help identify patients at risk of emotional distress. Family physicians can then offer supportive counseling or collaborate with mental health professionals to ensure comprehensive care.

Moreover, family practices can strengthen family involvement in care, helping to facilitate open discussions about the patient's wishes, treatment goals, and advance care planning. This approach fosters communication among family members, allowing for shared decision-making that honors the patient’s values and preferences [50].

The management of cancer in palliative care settings often requires a multidisciplinary approach, involving oncologists, palliative care specialists, social workers, nutritionists, and chaplains. Family physicians can serve as the central point of coordination, ensuring that all aspects of the patient's care are synchronized. This collaborative framework allows for comprehensive evaluations, shared decision-making, and maintenance of the patient's quality of life [51].

Efficient care coordination also helps navigate the complexities of health insurance, palliative care resources, and community support systems. Family practices can establish connections with local resources, enabling patients to access services such as home health care, hospice, and support groups, effectively bridging the gap between clinical management and community resources [51].

In family practice settings, recognizing and addressing the needs of caregivers is crucial. Caregivers often experience significant stress and burnout, making their well-being essential for the overall care of the patient. Educating caregivers about the disease process, symptom management, and available resources empowers them to support the patient while also attending to their own health needs [52].

Palliative care approaches advocate for the inclusion of caregivers in the care process. Family practices can facilitate caregiver support by offering educational resources, respite care options, and avenues for emotional support through group sessions or counseling. This not only improves caregiver outcomes but also enhances the overall support system for the patient [52].

Continuing Education and Training for Family Practitioners:

In the dynamic field of healthcare, practitioners dedicated to family cancer screening play a crucial role in early detection and prevention of various forms of cancer. As the understanding of cancer genetics, risk factors, and screening technologies continues to evolve, the necessity for ongoing education and training for these professionals cannot be overstated [53].

The Importance of Continuing Education

Family cancer screening practitioners—including genetic counselors, nurses, nurse practitioners, and primary care physicians—are at the frontline of cancer prevention strategies. Their responsibilities include assessing family histories for hereditary cancer syndromes, educating families about the risks associated with genetic predispositions, and guiding them through screening options. Consequently, practitioners must keep abreast of the latest research, technologies, and guidelines in cancer screening and genetic testing [53].

Continuing education is essential for several reasons:

1. **Rapidly Evolving Knowledge Base**: The field of oncology is characterized by rapid advancements in research and technology. New genetic markers and variations influencing cancer risk are continuously being identified. Practitioners must familiarize themselves with these findings to provide informed recommendations and interventions.
2. **Updating Clinical Guidelines**: Organizations such as the American Cancer Society and the National Comprehensive Cancer Network frequently update their screening guidelines based on new evidence and technologies. Practitioners need to be aware of these changes to ensure they employ best practices in their efforts to screen families effectively [54].
3. **Enhancing Communication Skills**: Effective communication is crucial in family cancer screening, particularly when discussing sensitive information such as genetic risks and test results. Continuing education programs often emphasize the importance of communication strategies, ensuring practitioners can convey complex information in an understandable and empathetic manner [54].

4. **Addressing Patient-Centric Care**: The modern healthcare paradigm emphasizes patient-centered approaches, which include shared decision-making and personalized care plans. Continued training ensures that practitioners understand how to incorporate patient preferences and values into their care strategies [55].
5. **Professional Development**: Engaging in continuing education fosters professional growth and enhances job satisfaction. It equips practitioners with the knowledge and skills necessary for career advancement, which can lead to leadership roles in community health and cancer prevention initiatives [55].

Current Trends in Continuing Education and Training

To address the needs of family cancer screening practitioners, various educational frameworks and resources have emerged. These trends can be observed in the following key areas:

1. **Online Learning Platforms**: The rise of digital technology has made it easier for practitioners to access training resources. Webinars, online courses, and virtual workshops offer flexible and convenient ways for healthcare providers to gain knowledge without significant disruptions to their practice. These platforms often feature expert speakers and interactive components, enhancing the learning experience [56].
2. **Interdisciplinary Collaboration**: With the increasing complexity of cancer screening and treatment, interdisciplinary training programs foster collaboration among various healthcare specialties. By working together, practitioners can share insights and best practices that may improve patient outcomes. For instance, genetic counselors may partner with primary care physicians to better understand the implications of genetic screening results [56].
3. **Simulation and Practical Workshops**: Practical, hands-on experiences are essential in training effective practitioners. Simulation-based training allows healthcare providers to practice communication and counseling skills in a controlled environment, receiving feedback that reinforces learning. Workshops that focus on case studies and real-world scenarios help to bridge the gap between theory and practice.
4. **Regular Formative Assessment**: To ensure that continuing education is producing desired outcomes, many organizations are implementing formative assessments that track progress and competencies over time. These assessments can guide practitioners in their learning paths and highlight areas needing additional focus [57].
5. **Incorporating Technological Advancements**: With the growth of telemedicine and mobile health technologies, training programs are increasingly covering the use of these tools in facilitating patient engagement and expanding access to screening services. Practitioners must understand how to leverage these technologies to optimize care delivery [57].

Impact on Patient Outcomes and Public Health

The implications of keeping family cancer screening practitioners educated and trained extend beyond individual practitioners; they significantly impact patient outcomes and public health as a whole. Well-informed practitioners are more likely to:

1. **Enhance Screening Uptake**: Knowledgeable practitioners equipped with the latest guidelines and resources can encourage increased participation in screening programs, leading to early detection and better survival rates for various cancers [58].
2. **Accurate Risk Assessment**: With ongoing training, practitioners enhance their ability to evaluate familial trends and genetic risks accurately. This precision allows for targeted

interventions and personalized care plans that cater specifically to individual patient needs [58].

3. **Improve Patient Education**: Continuous education empowers practitioners to educate patients effectively about screening options, potential outcomes, and the importance of taking proactive measures. Enhanced education fosters a more informed patient population that is more likely to engage in their health [59].
4. **Facilitate Community Outreach**: An educated workforce in family cancer screening can lead community health initiatives that promote awareness about cancer risks, the importance of family history, and available screening options. This outreach is vital in underserved communities with limited access to healthcare [60].
5. **Contribute to Research and Policy Development**: Continuously educated practitioners are more likely to participate in research initiatives and contribute to policy discussions regarding cancer prevention and screening strategies, helping to shape the future landscape of oncology care [61].

Conclusion:

In conclusion, the effective screening and management of cancer within family practice in Saudi Arabia hinge on the implementation of tailored strategies that consider the unique demographic and epidemiological landscape of the country. By prioritizing education and training for family practitioners, establishing clear guidelines for screening procedures, and fostering multidisciplinary collaborations, the healthcare system can enhance early detection and improve patient outcomes. Furthermore, addressing barriers to access and engaging in community outreach initiatives will ensure equitable healthcare services, particularly for underserved populations. As the burden of cancer continues to rise, a proactive, well-coordinated approach within family practice settings will be crucial in mitigating its impact and providing comprehensive care for patients and their families. This study underscores the importance of continuous improvement and adaptation of strategies to effectively combat cancer in Saudi Arabia, ultimately aiming for a healthier population with improved quality of life.

References:

1. Siegel R.L., Miller K.D., Fuchs H.E., Jemal A. Cancer statistics, 2022. CA Cancer J. Clin. 2022;72:7–33. doi: 10.3322/caac.21708.
2. Winters S., Martin C., Murphy D., Shokar N.K. Breast Cancer Epidemiology, Prevention, and Screening. Prog. Mol. Biol. Transl. Sci. 2017;151:1–32. doi: 10.1016/bs.pmbts.2017.07.002.
3. Jazieh A., Da'ar O.B., Alkaiyat M., Zaatreh Y., Saad A.A., Bustami R., Alrujaib M., Alkattan K. Cancer Incidence Trends from 1999 to 2015 and Contributions of Various Cancer Types to the Overall Burden: Projections to 2030 and Extrapolation of Economic Burden in Saudi Arabia. Cancer Manag. Res. 2019;11:9665–9674. doi: 10.2147/CMAR.S222667.
4. D'Souza S., Addepalli V. Preventive measures in oral cancer: An overview. Biomed. Pharmacother. 2018;107:72–80. doi: 10.1016/j.biopha.2018.07.114.
5. Ladabaum U., Mannalithara A., Meester R.G., Gupta S., Schoen R.E. Cost-Effectiveness and National Effects of Initiating Colorectal Cancer Screening for Average-Risk Persons at Age 45 Years Instead of 50 Years. Gastroenterology. 2019;157:137–148. doi: 10.1053/j.gastro.2019.03.023.

6. Global Burden of Disease Cancer Collaboration. Fitzmaurice C., Allen C., Barber R.M., Barregard L., Bhutta Z.A., Brenner H., Dicker D.J., Chimed-Orchir O., Dandona R., et al. Global, Regional, and National Cancer Incidence, Mortality, Years of Life Lost, Years Lived with Disability, and Disability-Adjusted Life-years for 32 Cancer Groups, 1990 to 2015: A Systematic Analysis for the Global Burden of Disease Study. JAMA Oncol. 2017;3:524–548. doi: 10.1001/jamaoncol.2016.5688.
7. Wender R.C., Brawley O.W., Fedewa S.A., Gansler T., Smith R.A. A blueprint for cancer screening and early detection: Advancing screening's contribution to cancer control. CA A Cancer J. Clin. 2018;69:50–79. doi: 10.3322/caac.21550.
8. Lu T., Yang X., Huang Y., Zhao M., Li M., Ma K., Yin J., Zhan C., Wang Q. Trends in the incidence, treatment, and survival of patients with lung cancer in the last four decades. Cancer Manag. Res. 2019;11:943–953. doi: 10.2147/CMAR.S187317.
9. US Preventive Services Task Force. Krist A.H., Davidson K.W., Mangione C.M., Barry M.J., Cabana M., Caughey A.B., Davis E., Donahue K., Doubeni C., et al. Screening for Lung Cancer. JAMA. 2021;325:962. doi: 10.1001/jama.2021.1117.
10. Mirghani H., Jung A.C., Fakhry C. Primary, secondary and tertiary prevention of human papillomavirus-driven head and neck cancers. Eur. J. Cancer. 2017;78:105–115. doi: 10.1016/j.ejca.2017.03.021.
11. Smith R.A., Andrews K.S., Brooks D., Fedewa S.A., Manassaram-Baptiste D., Saslow D., Brawley O.W., Wender R.C. Cancer screening in the United States, 2018: A review of current American cancer society guidelines and current issues in cancer screening. CA Cancer J. Clin. 2018;68:297–316. doi: 10.3322/caac.21446.
12. Ait Ouakrim D., Pizot C., Boniol M., Malvezzi M., Boniol M., Negri E., Bota M., Jenkins M.A., Bleiberg H., Autier P. Trends in colorectal cancer mortality in Europe: Retrospective analysis of the WHO mortality database. BMJ. 2015;351:h4970. doi: 10.1136/bmj.h4970.

13. Trends in the incidence and mortality of cancer in Saudi Arabia. Althubiti MA, Eldein MM. Saudi Med J. 2018;39:1259–1262. doi: 10.15537/smj.2018.12.23348.

14. National screening programs in Saudi Arabia: overview, outcomes, and effectiveness. Gosadi IM. J Infect Public Health. 2019;12:608–614. doi: 10.1016/j.jiph.2019.06.001.

15. Screening for colorectal cancer: Updated evidence report and systematic review for the US preventive services task force. Lin JS, Piper MA, Perdue LA, et al. JAMA. 2016;315:2576–2594. doi: 10.1001/jama.2016.3332.

16. Effectiveness of breast cancer screening: systematic review and meta-analysis to update the 2009 U.S. Preventive Services Task Force recommendation. Nelson HD, Fu R, Cantor A, Pappas M, Daeges M, Humphrey L. Ann Intern Med. 2016;164:244–255. doi: 10.7326/M15-0969.

17. Breast cancer screening in Saudi Arabia: free but almost no takers. El Bcheraoui C, Basulaiman M, Wilson S, et al. PLoS One. 2015;10:0. doi: 10.1371/journal.pone.0119051.

18. Global cancer statistics 2018: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. CA Cancer J Clin. 2018;68:394–424. doi: 10.3322/caac.21492.

19. Cervical cancer screening uptake and predictors among women in Jeddah, Saudi Arabia. Alsalmi SF, Othman SS. Cureus. 2022;14:0. doi: 10.7759/cureus.24065.

20. Prostate-specific antigen-based screening for prostate cancer evidence report and systematic review for the US Preventive Services Task Force. Fenton JJ, Weyrich MS, Durbin S, Liu Y, Bang H, Melnikow J. JAMA. 2018;319:1914–1931. doi: 10.1001/jama.2018.3712.

21. Lung cancer in Saudi Arabia. Jazieh AR, Algwaiz G, Alshehri SM, Alkattan K. J Thorac Oncol. 2019;14:957–962. doi: 10.1016/j.jtho.2019.01.023.

22. Screening for lung cancer with low-dose computed tomography: a systematic review to update the US Preventive Services Task Force recommendation. Humphrey LL, Deffebach M, Pappas M, et al. Ann Intern Med. 2013;159:411–420. doi: 10.7326/0003-4819-159-6-201309170-00690.

23. Ministry of Health: Breast cancer early detection. [Jan; 2023]. 2020.

24. Do you recommend cancer screening to your patients? A cross-sectional study of Norwegian doctors. Bringedal B, Fretheim A, Nilsen S, Isaksson Rø K. BMJ Open. 2019;9:29739. doi: 10.1136/bmjopen-2019-029739.

25. Utilization of colorectal cancer screening among Saudi elderly population: a study from the Saudi national survey for elderly health. Khoja A, Aljawadi M, Al-Shammari SA, Bokhari NN, Aldarwish AA, Mardini WK, Khoja TA. Asian Pac J Cancer Prev. 2018;19:3401–3407. doi: 10.31557/APJCP.2018.19.12.3401.

26. Screening for cervical cancer: a systematic review and meta-analysis. Peirson L, Fitzpatrick-Lewis D, Ciliska D, Warren R. Syst Rev. 2013;2:35. doi: 10.1186/2046-4053-2-35.

27. Screening for prostate cancer: US Preventive Services Task Force recommendation statement. Grossman DC, Curry SJ, Owens DK, et al. JAMA. 2018;319:1901–1913. doi: 10.1001/jama.2018.3710.

28. Ministry of Health: Colorectal cancer early detection. [Jan; 2023]. 2021.

29. Cervical cancer screening program in Saudi Arabia: action is overdue. Manji M. Ann Saudi Med. 2000;20:355–357. doi: 10.5144/0256-4947.2000.355.

30. Ministry of Health: HSTP guide. [Jul; 2022]. 2021.

31. Awareness about prostate cancer and its screening in Medina, Jeddah, and Makkah, Saudi Arabia population. Jarb A., Aljuaid A., Alghamdi S., Almathami A., Altawili A., Alesawi A. Urol. Ann. 2022;14:27. doi: 10.4103/ua.ua_113_21.

32. Knowledge and attitude of the population toward cancer prostate Riyadh, Saudi Arabia. Farhat K.H., Arafa M.A., Rabah D.M. Urol. Ann. 2015;7:154–158. doi: 10.4103/0974-7796.150516.

33. Internet-based mental health programs: A powerful tool in the rural medical kit. Griffiths K.M., Christensen H. Aust. J. Rural. Health. 2007;15:81–87. doi: 10.1111/j.1440-1584.2007.00859.x.

34. Factors Associated with Knowledge, Attitudes, and Practice towards Colorectal Cancer and Its Screening among People Aged 50–75 Years. Wong F.M.F. Int. J. Environ. Res. Public Health. 2021;18:4100. doi: 10.3390/ijerph18084100.

35. Geographic variation in compliance with Australian colorectal cancer screening programs: The role of attitudinal and cognitive traits. Goodwin B., March S., Ireland M., Williams F.C., Manksi D., Ford M., Dunn J. Rural Remote Heal. 2019;19:4957. doi: 10.22605/RRH4957.

36. Breast cancer screening in Saudi Arabia: Free but almost no takers. El Bcheraoui C., Basulaiman M., Wilson S., Daoud F., Tuffaha M., Almazroa M.A., Memish Z.A., Al Saeedi M., Mokdad A.H. PLoS ONE. 2015;10:e0119051. doi: 10.1371/journal.pone.0119051.

37. Updates in Screening Recommendations for Colorectal Cancer. Ness R.M. J. Natl. Compr. Cancer Netw. 2022;20:603–606. doi: 10.6004/jnccn.2022.5006.

38. Knowledge, attitude and practice towards early screening of colorectal cancer in Riyadh. Alshammari S.A., Alenazi H.A., Alshammari H.S. J. Fam. Med. Prim. Care. 2020;9:2273–2280. doi: 10.4103/jfmpc.jfmpc_290_20.

39. Patterns and Trends in Cancer Screening in the United States. Hall I.J., Tangka F.K., Sabatino S.A., Thompson T.D., Graubard B.I., Breen N. Prev. Chronic Dis. 2018;15:E97. doi: 10.5888/pcd15.170465.

40. Public awareness of colon cancer screening among the general population: A study from the Western Region of Saudi Arabia. Khayyat Y.M., Ibrahim E.M. Qatar Med. J. 2014;2014:17–24. doi: 10.5339/qmj.2014.3.

41. Racial differences in knowledge, attitudes, and cancer screening practices among a triracial rural population. Paskett E.D., Tatum C., Rushing J., Michielutte R., Bell R., Foley K.L., Bittoni M., Dickinson S. Cancer. 2004;101:2650–2659. doi: 10.1002/cncr.20671.

42. Cervical cancer screening participation for women with chronic conditions in France: Results from a national health survey. Constantinou P., Dray-Spira R., Menvielle G. BMC Cancer. 2016;16:255. doi: 10.1186/s12885-016-2295-0.

43. Knowledge, Attitude, and Practice on Cervical Cancer and Screening Among Women in India: A Review. Taneja N., Chawla B., Awasthi A.A., Shrivastav K.D., Jaggi V.K.,

Janardhanan R. Cancer Control. 2021;28:10732748211010799. doi: 10.1177/10732748211010799.

44. Evaluating the efficacy of an online depression screening tool in South Africa: A pilot study. Hassem T. South Afr. J. Psychiatry. 2022;28:8. doi: 10.4102/sajpsychiatry.v28i0.1687.

45. The Global Breast Cancer Initiative: A strategic collaboration to strengthen health care for non-communicable diseases. Anderson B.O., Ilbawi A.M., Fidarova E., Weiderpass E., Stevens L., Abdel-Wahab M., Mikkelsen B. Lancet Oncol. 2021;22:578–581. doi: 10.1016/s1470-2045(21)00071-1.

46. Knowledge, attitude, practice, and perceived barriers of colorectal cancer screening among family physicians in National Guard Health Affairs, Riyadh. Demyati E. Int J Family Med. 2014;2014:457354. doi: 10.1155/2014/457354.

47. Knowledge, attitude, and practice of colorectal cancer among school teachers in Al-Ahsa Saudi Arabia. Al-Thafar AK, Al-Naim AF, Albges DS, Boqursain SK, Aldhafar AS, Ghreiz SM, Ibrahim S. Asian Pac J Cancer Prev. 2017;18:2771–2774. doi: 10.22034/APJCP.2017.18.10.2771.

48. Perceived barriers to breast cancer screening among Saudi women at primary care setting. Abdel-Aziz SB, Amin TT, Al-Gadeeb MB, et al. Asian Pac J Cancer Prev. 2017;18:2409–2417. doi: 10.22034/APJCP.2017.18.9.2409.

49. Physician gender differences in general and cancer-specific prevention attitudes and practices. Ramirez AG, Wildes KA, Nápoles-Springer A, Pérez-Stable E, Talavera G, Rios E. J Cancer Educ. 2009;24:85–93. doi: 10.1080/08858190802664396.

50. Knowledge, attitudes, and practices of breast cancer screening methods among female patients in primary healthcare centers in Najran, Saudi Arabia. Alshahrani M, Alhammam SY, Al Munyif HA, Alwadei AM, Alzamanan SS, Aljohani NS. J Cancer Educ. 2019;34:1167–1172. doi: 10.1007/s13187-018-1423-8.

51. Access barriers in early diagnosis of breast cancer in the Federal District and Oaxaca. Nigenda G, Caballero M, González-Robledo ML. Salud Pública Méx. 2009;51:254–262.

52. Knowledge, attitude, and practices of primary health care physicians toward colorectal cancer screening. Mosli M, Alnahdi Y, Alghamdi A, et al. Saudi J Gastroenterol. 2017;23:330–336. doi: 10.4103/sjg.SJG_1_17.

53. Colorectal cancer screening in Ghana: physicians' practices and perceived barriers. Lussiez A, Dualeh SH, Dally CK, et al. World J Surg. 2021;45:390–403. doi: 10.1007/s00268-020-05838-y.

54. Factors associated with mammography utilization: a systematic quantitative review of the literature. Schueler KM, Chu PW, Smith-Bindman R. J Womens Health (Larchmt) 2008;17:1477–1498. doi: 10.1089/jwh.2007.0603.

55. Knowledge, attitude, and behavior of family medicine residents regarding low-dose computed tomography lung cancer screening at primary care setting in Riyadh. Alrabiah BK, Alshammari SA, Alwatban OJ. Medical Science. 2021;25:2311–2321.

56. The relevance of prostate cancer screening among Saudi men attending outpatient clinics of tertiary-care hospitals in Riyadh, Saudi Arabia. Mujamammi AH, Sabi EM, Zawawi BA, et al. Imam J Appl Sci. 2021;6:11–16.

57. Primary care practice and facility quality orientation: influence on breast and cervical cancer screening rates. Goldzweig CL, Parkerton PH, Washington DL, Lanto AB, Yano EM. Am J Manag Care. 2004;10:265–272.

58. Targeted cancer screening in average-risk individuals. Marcus PM, Freedman AN, Khoury MJ. Am J Prev Med. 2015;49:765–771. doi: 10.1016/j.amepre.2015.04.030.

59. Provider characteristics and mammography recommendation among women in their 40s and 50s. Dominick KL, Skinner CS, Bastian LA, Bosworth HB, Strigo TS, Rimer BK. J Womens Health (Larchmt) 2003;12:61–71. doi: 10.1089/154099903321154158.

60. Physician nonprofessional cancer experience and ovarian cancer screening practices: results from a national survey of primary care physicians. Ragland M, Trivers KF, Andrilla CH, et al. J Womens Health (Larchmt) 2018;27:1335–1341. doi: 10.1089/jwh.2018.6947.

61. Knowledge, attitude, and practice of colorectal cancer screening among primary healthcare physicians in Riyadh second health cluster. Alghamdi AA, Almutairi AH, Aldosari FS, Al-Owayed AM, AlOtaibi HK, Alghamdi TA, Aldossary AS. Cureus. 2022;14:0. doi: 10.7759/cureus.32069.