

---

# Preventive Health Care the Shared Responsibilities of Nurses and Family Physicians

**Abdulaziz Matar R. Alanazi<sup>1</sup>, Zahra Ali M. Shaya<sup>2</sup>, Abdulaziz Osaywid Eid Alrashidi<sup>3</sup>, Alanoud Khashman Ali Alshammari<sup>4</sup>, Maram Mansour Alshammari<sup>5</sup>, Mahdi Mohammed S. Alsharari<sup>6</sup>, Tahani Ahmed Aldera<sup>7</sup>, Adel Ayed Alruwaili<sup>8</sup>, Majed Mohammed Ali Saeed Alfuraydi<sup>9</sup>, Saleh Jumayan Alruwaili<sup>10</sup>**

<sup>1</sup> Senior Registrar Family Medicine - Primary Healthcare Center in Badnah, Arar, Northern Border Region, Saudi Arabia

<sup>2</sup> Nursing Technician - Ministry of Health - Aseer Branch, Aseer Region, Saudi Arabia

<sup>3</sup> Nursing Specialist - Eradah Complex for Mental Health, Hail, Hail Region, Saudi Arabia

<sup>4</sup> Nursing Specialist - Maternity and Children Hospital, Hail, Hail Region, Saudi Arabia

<sup>5</sup> Nursing Specialist - Hail Health Cluster, Hail, Hail Region, Saudi Arabia

<sup>6</sup> Assistant Nursing - Al-Hamidiyah Health Center, Al-Qurayyat, Al-Jouf Region, Saudi Arabia

<sup>7</sup> Nursing Technician - Primary Healthcare Center East, Domat Al-Jandal, Al-Jouf Region, Saudi Arabia

<sup>8</sup> Nursing Technician - Long-Term Care Hospital, Arar, Northern Border Region, Saudi Arabia

<sup>9</sup> Public Health Technician - King Salman Bin Abdulaziz Medical City, Madinah Al-Munawwarah, Madinah Region, Saudi Arabia

<sup>10</sup> Nursing Technician - Long-Term Care Hospital, Arar, Northern Border Region, Saudi Arabia

---

## **Abstract:**

Preventive health care is vital in reducing the incidence of chronic diseases and improving overall community health. Both nurses and family physicians play essential roles in this proactive approach to healthcare. Family physicians are typically the first point of contact for patients and are responsible for comprehensive health assessments, screenings, and patient education on lifestyle modifications and disease prevention strategies. They often create preventive care plans tailored to individual patient needs, considering their medical history, risk factors, and personal preferences. Family physicians also provide immunizations and health checks to monitor patients' health over time, ensuring that potential health issues are addressed early on. Nurses complement the efforts of family physicians by providing continuous support and education to patients. Their responsibilities include conducting health screenings, administering vaccinations, and offering counseling on nutrition, exercise, and stress management. The strong patient relationships that nurses establish allow for ongoing education and support, which is crucial for maintaining healthy behaviors. Additionally, nurses often coordinate care between different healthcare providers, ensuring that patients receive comprehensive preventive services. Through collaboration, nurses and family physicians can empower patients to engage in their health care actively, fostering a culture of prevention that can lead to healthier outcomes and reduced healthcare costs in the long term.

**Keywords:** Preventive health care, nurses, family physicians, chronic diseases, health assessments, patient education, lifestyle modifications, immunizations, health screenings, care coordination.

---

## **Introduction:**

In the evolving landscape of healthcare, preventive health care has emerged as a pivotal component in enhancing population health and controlling healthcare costs. It emphasizes proactive measures over reactive treatments, focusing on reducing the

incidence of diseases and promoting wellness through health education, screenings, vaccinations, and lifestyle interventions. Central to the success of preventive health care are the complementary roles of nurses and family physicians, whose collaboration is essential in a multidisciplinary approach to patient care [1].

The importance of preventive health care cannot be overstated. Chronic diseases such as diabetes, heart disease, and obesity pose significant threats to public health, contributing to a substantial burden on healthcare systems globally. According to the Centers for Disease Control and Prevention (CDC), approximately 6 in 10 adults in the United States have a chronic disease, underscoring the necessity for effective prevention strategies. Prevention not only reduces the incidence and morbidity of these conditions but also plays a critical role in lowering healthcare costs associated with treatment and management [2].

Nurses and family physicians are frontline healthcare providers equipped with unique skills, knowledge, and perspectives that are vital to effective preventive health care. Family physicians typically act as primary care providers, responsible for diagnosing and managing a wide range of health issues, and their training emphasizes comprehensive and continuous care for families and individuals across the lifespan. They play an essential role in identifying risk factors and initiating preventive measures during patient visits. On the other hand, nurses, with their patient-centered approach and expertise in care delivery, are often the first point of contact for patients seeking health advice. Their roles include health education, conducting screenings, and managing chronic disease programs, thereby facilitating early intervention and promoting adherence to preventive guidelines [3].

Shared responsibility in preventive health care involves a coordinated effort where nurses and family physicians work synergistically to develop and implement preventative strategies tailored to individual and community needs. This collaborative model enhances the quality of care by ensuring that patients receive holistic, continuous, and accessible health services. However, effective collaboration is often hampered by several barriers, including fragmented healthcare systems, differing professional cultures, and communication challenges. These barriers can lead to gaps in care and missed opportunities for preventive interventions, thereby diminishing the overall effectiveness of health promotion efforts [4].

Moreover, understanding the socio-economic determinants of health is crucial for both nurses and family physicians in their preventive health responsibilities. Factors such as income, education,

environment, and access to healthcare significantly influence health outcomes. As such, a comprehensive approach that incorporates these determinants into health assessments and interventions is vital. By addressing social determinants, nurses and family physicians can tailor their preventive efforts more effectively, ensuring that vulnerable populations receive the necessary support to enhance their health and well-being [5].

This research seeks to delve into the shared responsibilities of nurses and family physicians within the framework of preventive health care, emphasizing the importance of collaboration in improving patient outcomes. By examining current models of teamwork, reviewing relevant literature, and exploring implications for practice, this study aims to identify best practices and strategies that can optimize the roles of both healthcare providers in the preventive care continuum. Additionally, understanding the challenges they face in executing these responsibilities will provide insights into potential policy changes and educational needs for enhancing interdisciplinary collaboration [6].

### **Role of Family Physicians in Preventive Health:**

Family physicians serve as the cornerstone of primary healthcare in communities around the world. Their role transcends mere symptom management and episodic care; it embodies a holistic approach to health that prioritizes prevention as an essential component. Preventive health strategies, which aim to avert diseases before they arise, are critical in promoting the well-being of individuals and communities alike [7].

### **Understanding Preventive Health**

Preventive health, at its core, is about minimizing risks and promoting health before illness occurs. This branch of healthcare is typically categorized into three levels: primary, secondary, and tertiary prevention. Primary prevention focuses on avoiding the onset of disease through health promotion and risk reduction strategies. Secondary prevention involves early detection and prompt intervention in asymptomatic disease states, aiming to halt the progression of diseases. Tertiary prevention aims to reduce the impact of already established diseases through rehabilitation and management. Family physicians are pivotal in implementing these preventive strategies, addressing an array of health

concerns while fostering strong relationships with their patients [8].

### **Building Long-Term Relationships**

One of the most significant aspects of family medicine is the continuity of care. Family physicians often care for multiple generations within a single family, allowing them to attain a comprehensive understanding of their patients' health histories, lifestyles, and social contexts. These enduring relationships create an environment in which physicians can effectively motivate patients to engage in preventive measures. The more familiar patients are with their physicians, the more likely they are to adhere to preventive care recommendations such as vaccinations, screenings, and lifestyle modifications [9].

### **Health Education and Counseling**

Education is a powerful tool in promoting preventive health, and family physicians are uniquely positioned to provide information tailored to individual patients. They can assess a patient's risk factors for various illnesses through discussions during routine check-ups. For instance, a family physician may counsel a patient about the importance of regular exercise and a balanced diet to prevent obesity, diabetes, and cardiovascular diseases. Moreover, they can craft personalized plans that incorporate patients' cultural and socioeconomic factors, increasing the likelihood of adherence to these healthy practices.

Additionally, family physicians play a crucial role in educating patients about the importance of preventative screenings, such as mammograms, colonoscopies, and blood pressure checks. By providing formal guidelines and recommendations based on evidence-based practices, they help patients understand the necessity of these procedures. For example, emphasizing the importance of regular cholesterol and glucose level monitoring can empower patients to take charge of their health, potentially preventing serious complications later on [10].

### **Prevention of Chronic Conditions**

Chronic diseases are among the leading causes of morbidity and mortality worldwide and pose significant challenges to healthcare systems. Family physicians serve on the frontline of preventive health as they can identify risk factors associated

with these chronic conditions early on. By conducting comprehensive health assessments and periodic screenings, they are able to detect early signs of diseases like hypertension, diabetes, and hyperlipidemia.

Once risk factors are identified, family physicians can implement targeted interventions that include lifestyle changes, pharmacologic therapies, and referrals to specialists when necessary. For example, they may work with a patient diagnosed with pre-diabetes to develop a personalized plan that includes nutritional guidance and an exercise regimen, thereby preventing the progression to type 2 diabetes. This proactive approach not only enhances individual health outcomes but also contributes to reducing the burden of chronic diseases on healthcare systems [11].

### **Community Engagement and Public Health**

Family physicians have a unique role in linking individual patient care to broader public health initiatives. By understanding the health dynamics of the communities in which they practice, they can advocate for preventive measures that address public health challenges. This may involve participation in vaccination drives, health fairs, and community seminars aimed at education and prevention of communicable diseases such as influenza or COVID-19.

Moreover, family physicians can provide vital input into community health assessments, helping to shape local health policies and programs. Their firsthand experience with patient populations makes them invaluable as advisors on resource allocation, program development, and health promotion initiatives that meet the specific needs of their communities [12].

### **PROMOTING Mental Health and Addressing Social Determinants of Health**

Preventive health is not limited to physical ailments alone; it encompasses mental health as well. Family physicians are often at the forefront of recognizing mental health issues and can facilitate early interventions. They can screen for conditions such as depression and anxiety, provide counseling, and refer patients to mental health specialists when necessary. Promoting mental well-being as part of preventive care contributes to a more comprehensive approach to health.

Social determinants of health (SDH) — including socioeconomic status, education, and environment — play a significant role in an individual's health outcomes. Family physicians can address these factors by discussing social challenges with their patients and connecting them to community resources that can assist in addressing housing, nutrition, and financial issues. By taking a holistic approach to care, they can influence the overall health trajectory of their patients beyond mere clinical interventions [13].

### **The Contribution of Nurses to Preventive Care Strategies:**

Preventive care is fundamental to the modern healthcare paradigm, emphasizing the importance of reducing disease incidence and promoting health and wellness. At the heart of this initiative lies a critical group of healthcare professionals: nurses. With their unique positioning and comprehensive understanding of patient needs, nurses play an indispensable role in the development, implementation, and success of preventive care strategies.

Preventive care encompasses a range of services aimed at preventing diseases before they occur. It includes health education, routine screenings, immunizations, counseling on lifestyle changes, and follow-up care. The World Health Organization (WHO) identifies prevention as a cornerstone of public health, designed to save lives, reduce healthcare costs, and enhance overall quality of life. Given the multifaceted nature of preventive care, a collaborative approach among healthcare providers is essential, with nurses serving as key facilitators [14].

### **The Role of Nurses in Preventive Care**

Nurses are often the first point of contact for patients in the healthcare system. Their roles in preventive care can be categorized into several fundamental areas:

1. **Health Education and Promotion:**  
One of the primary functions of nurses is to educate patients about health-promoting behaviors. Through personalized health education, nurses inform patients about the risks associated with certain lifestyle choices and the advantages of preventive measures such as vaccinations, screenings,

and regular health check-ups. Evolving from traditional clinical roles, many nurses now engage in community health initiatives that advocate for healthy living, thereby impacting broader populations rather than individual patients [15].

2. **Screening and Assessment:**  
Nurses are trained to conduct various health screenings and assessments that form the backbone of preventive care. By measuring vital signs, conducting thorough physical assessments, and utilizing screening tools for diseases such as diabetes, hypertension, and cervical cancer, nurses identify potential health risks early. These assessments allow for timely interventions, often alleviating the progression of diseases and improving patient outcomes [16].
3. **Immunization:**  
The role of nurses in immunization efforts cannot be overstated. Pediatric and adult immunization programs are critical to preventing outbreaks of vaccine-preventable diseases. Nurses are often responsible for administering vaccines, educating patients about their importance, and tracking vaccination records. Their involvement in public health campaigns can significantly increase vaccination rates within communities, contributing to herd immunity and reducing the prevalence of infectious diseases.
4. **Chronic Disease Management:**  
In managing chronic diseases, nurses implement preventive strategies that focus on education, monitoring, and lifestyle modification. By providing patients with the necessary skills and support to manage conditions like diabetes, asthma, and heart disease, nurses empower individuals to take control of their health. This proactive care not only helps improve quality of life for patients but also reduces the overall burden on the healthcare system [17].
5. **Collaboration and Advocacy:**  
Nurses play a crucial role in healthcare teams, collaborating with physicians, pharmacists, social workers, and public

health officials to create comprehensive preventive care strategies. Furthermore, nursing professionals advocate for policies that promote health equity and access to preventive services, recognizing the social determinants of health that impact patient well-being. By engaging in policy-making and community outreach, nurses contribute to a healthier society [18].

### **Overcoming Barriers**

Despite their vital contributions, nurses often face challenges in executing preventive care strategies effectively. One significant barrier is the lack of resources, including staffing, training, and funding for preventive programs. Additionally, time constraints within clinical settings can limit the ability of nurses to engage in thorough health promotion and education. Furthermore, varying state regulations regarding nursing practice can restrict their ability to perform preventive services independently.

To overcome these barriers, it is essential for healthcare organizations to invest in nursing education and ongoing professional development. Equipping nurses with advanced knowledge and skills enhances their efficacy in preventive care. Healthcare systems must also prioritize interdisciplinary teamwork, allowing nurses to leverage other professionals' expertise, thereby enhancing the overall impact of preventive care initiatives [19].

### **The Future of Nursing in Preventive Care**

As the healthcare landscape continues to evolve, the responsibility of nurses in preventive care will expand. The integration of technology into healthcare systems presents new opportunities for nurses to engage with patients and promote preventive strategies. Telehealth, for instance, allows nurses to reach underserved populations, provide health education, and conduct follow-up assessments remotely, breaking down geographical and social barriers.

Furthermore, an increasingly aging population necessitates more robust preventive measures. Nurses will continue to advocate for healthy aging practices, monitor chronic diseases in older adults, and facilitate access to preventive services. This shift highlights the critical need for nurses to adapt

their skills and knowledge to meet the changing healthcare demands of society [20].

### **Collaboration Between Nurses and Family Physicians:**

In the current landscape of healthcare, the emphasis on preventive care has never been more critical. The rising prevalence of chronic diseases, coupled with an aging population, necessitates a holistic approach to healthcare that prioritizes early intervention and health promotion. Within this framework, the collaboration between nurses and family doctors emerges as a cornerstone for effective preventive care [21].

Preventive care aims to prevent diseases and health conditions before they occur, focusing on health promotion, early detection, and effective management. Strategies employed in preventive care include vaccinations, screenings, lifestyle counseling, and regular check-ups. Evidence suggests that preventive care can reduce healthcare costs, improve quality of life, and enhance patient outcomes. According to the Centers for Disease Control and Prevention (CDC), every dollar spent on preventive services can save the healthcare system approximately \$5.60 in treatment costs, underscoring the economic benefits of preventive care programs [22].

Both nurses and family doctors play pivotal roles in the delivery of preventive care. Family doctors, or primary care physicians, are often the first point of contact for patients within the healthcare system. They are responsible for diagnosing medical conditions, managing treatments, and providing comprehensive patient care. Their training equips them to assess patients holistically, considering medical history, lifestyle factors, and community influences.

Nurses, on the other hand, are vital in patient education, health promotion, and chronic disease management. Often working closely with physicians, nurses can provide a bridge between clinical care and community health resources. They are extensively involved in administering vaccinations, conducting health screenings, implementing care plans, and educating patients about lifestyle modifications. The diverse skill sets of both professions complement each other, facilitating a multidisciplinary approach to preventive health [23].

### The Dynamics of Collaboration

Effective collaboration between nurses and family doctors for preventive care is characterized by communication, shared goals, and mutual respect. When these two groups work together, they can provide comprehensive care that addresses not only the medical but also the social determinants of health that impact individual patient outcomes [24].

1. **Integrated Care Models:** One of the effective methods of collaboration is through integrated care models, where nurses and family doctors work in tandem within multidisciplinary teams. This approach ensures that all aspects of a patient's health are considered, and care is coordinated effectively. For instance, during a patient's visit, a nurse can conduct routine screenings, collect health-related data, and discuss prevention strategies, allowing the family doctor to focus on diagnosis and treatment planning.
2. **Health Education and Promotion:** Nurses are key in implementing educational programs, which empower patients with knowledge about preventive measures. By collaborating with family doctors, nurses can ensure that the information disseminated aligns with medical advice, enhancing the credibility of the education provided. This collective effort can lead to improved patient compliance with preventive measures and healthier lifestyle choices [25].
3. **Chronic Disease Management:** Chronic diseases, such as diabetes, hypertension, and obesity, are prime targets for preventive care. Nurses play a crucial role in monitoring patients, providing counseling, and supporting behavior change. Family doctors can contribute by managing medication and adjusting treatment plans when necessary. When these professionals collaborate, they create a more effective and personalized approach to managing chronic conditions, ultimately reducing complications and hospitalizations [26].

### Benefits of Collaboration

The collaboration between nurses and family doctors offers numerous benefits for healthcare systems and patients alike:

1. **Improved Health Outcomes:** Working together enables comprehensive care delivery, which leads to better patient outcomes. Studies indicate that collaborative practices can lead to higher rates of vaccinations, better management of chronic diseases, and improved patient satisfaction [27].
2. **Increased Efficiency:** Collaboration streamlines workflow, allowing healthcare providers to maximize their time and resources. Nurses can handle frontline preventive measures, freeing family doctors to manage more complex cases.
3. **Enhanced Patient Engagement:** Collaborative care fosters a participatory model of healthcare, where patients are more engaged in their care processes. This involvement leads to adherence to preventive measures and a deeper understanding of their health.
4. **Cost-Effectiveness:** By preventing diseases and managing conditions effectively, collaborative care models can mitigate long-term healthcare costs. Preventive interventions often require lower resource investments than treating advanced diseases and their complications [28].

### Challenges to Collaboration

Despite the advantages, several challenges impede the effective collaboration between nurses and family doctors in preventive care:

1. **Communication Barriers:** Miscommunication can occur due to differing terminologies and perspectives inherent in various healthcare disciplines. Establishing clear communication channels is essential to convey patient care plans effectively [29].
2. **Role Ambiguity:** There can be confusion regarding roles and responsibilities. Defining the scope of practice for both

nurses and family doctors is crucial to ensuring that all team members understand their contributions to patient care.

3. **Resource Constraints:** Limited resources, including staff shortages and time constraints, can hinder collaboration efforts. Healthcare organizations must invest in supporting integrated care models by providing adequate staffing and technological solutions.
4. **Cultural Resistance:** In some healthcare settings, a traditional hierarchical structure may impede collaborative practices. Shifting towards a culture of teamwork and shared responsibility requires a change in mindset among healthcare professionals [30].

### Future Implications

The future of healthcare necessitates an increased focus on the collaboration between nurses and family doctors, especially as the healthcare landscape continues to evolve. Training programs should place a greater emphasis on interprofessional education, where nursing and medical students learn about collaborative practices together. Additionally, healthcare organizations can foster environments conducive to teamwork by encouraging shared decision-making and investment in accessible technology that supports communication and care coordination.

Moreover, adopting policies that promote integrated care delivery models will be essential. Legislative frameworks that recognize the value of collaborative practices can incentivize family doctors and nurses to work together, ultimately enhancing the effectiveness of preventive care initiatives [31].

### Patient Education and Health Promotion:

In contemporary healthcare, patient education and health promotion stand as pivotal components in achieving optimal health outcomes. As healthcare becomes increasingly complex, fostering a knowledgeable patient base is critical not only to enhance individual health but also to reduce the burden on healthcare systems by preventing complications and promoting healthy lifestyle choices [32].

Patient education refers to the process of informing patients about their health conditions, treatment options, and strategies for managing their health. It encompasses a broad range of activities, including teaching patients how to follow a prescribed treatment regimen, self-management of chronic conditions, understanding medications, and adopting healthy lifestyle changes. The significance of this education cannot be overstated; informed patients are more likely to engage in their care, adhere to treatment plans, and make decisions that positively affect their health outcomes.

Research consistently demonstrates that patient education leads to improved health outcomes. For instance, patients with chronic conditions like diabetes or heart disease who receive proper education are better equipped to manage their conditions, resulting in fewer complications and hospitalizations. Moreover, education empowers patients to take responsibility for their health, thereby enhancing their quality of life and overall satisfaction with healthcare services [33].

### Health Promotion: A Broader Perspective

Health promotion extends beyond individual education; it encompasses a comprehensive, community-oriented approach aimed at improving the overall health of populations. The World Health Organization (WHO) defines health promotion as "the process of enabling people to increase control over, and to improve, their health." This involves addressing a myriad of determinants of health, including social, economic, and environmental factors, and promoting healthy behaviors through education and policy.

A fundamental aspect of health promotion is the emphasis on prevention. By educating communities about nutrition, physical activity, mental health, and substance abuse, health promotion initiatives can mitigate the onset of diseases before they occur. For example, smoking cessation programs and campaigns to reduce alcohol consumption have proven effective in diminishing rates of preventable diseases such as cancer, heart disease, and liver disorders [34].

### Strategies for Effective Patient Education and Health Promotion

To maximize the impact of patient education and health promotion, various strategies can be

employed. These strategies should be tailored to meet the unique needs of diverse patient populations, considering factors such as age, culture, education level, and health literacy.

1. **Assessing Health Literacy:** Health literacy refers to an individual's ability to obtain, process, and understand basic health information. It is imperative to assess patients' health literacy levels to tailor educational materials appropriately. Using simple language, visual aids, and interactive tools can enhance understanding and retention of information.
2. **Utilizing Technology:** The advent of technology has transformed patient education and health promotion. Telehealth services, mobile health apps, and online educational resources can provide patients with convenient access to information and support [35]. Moreover, these platforms facilitate real-time communication with healthcare providers, enabling patients to ask questions and clarify doubts.
3. **Community Engagement:** Health promotion initiatives benefit significantly from community involvement. Engaging local organizations, schools, and faith-based institutions can help disseminate health information effectively. Community health workers can serve as liaisons between healthcare providers and patients, offering culturally relevant education and support [36].
4. **Empowering Patients:** Effective education should empower patients to take charge of their health. This involves encouraging self-efficacy and confidence in managing health conditions. Programs that include skills training, decision-making, and goal-setting can motivate patients to actively participate in their care.
5. **Continuous Evaluation and Feedback:** To ensure that educational strategies are effective, continuous evaluation is essential. Monitoring outcomes and collecting feedback from patients can help identify areas for improvement and adapt programs as needed. Learning from

successful initiatives and failures alike can drive innovations in patient education and health promotion [37].

### **The Impact of Patient Education and Health Promotion**

The implications of effective patient education and health promotion are multifaceted. On an individual level, informed patients are more likely to engage in preventive care, adhere to treatment plans, and make healthier lifestyle choices. This can lead to reduced rates of chronic illnesses, decreased healthcare costs, and improved quality of life.

At a collective level, health promotion initiatives can lead to healthier communities. Lower incidence rates of preventable diseases relieve pressure on healthcare systems, allowing resources to be allocated more effectively. Additionally, a healthier population can contribute to economic productivity and social well-being, creating a virtuous cycle of health and prosperity [38].

### **Screening and Early Detection: Comprehensive Approaches:**

Preventive care plays a critical role in the healthcare system, aiming to avert the onset of diseases and enhance the overall health status of populations. Among the varied strategies embraced by preventive care, screening and early detection stand out as foundational pillars. These approaches—rooted in the principle that early identification of health conditions can lead to timely intervention and improved health outcomes—are instrumental in combating a myriad of diseases, particularly chronic conditions such as cancer, diabetes, and cardiovascular diseases.

Screening involves conducting tests or examinations on asymptomatic individuals to identify potential health disorders or conditions. The rationale behind screening is straightforward: early detection of diseases can often lead to more effective and less invasive treatment options, which in turn can save lives and reduce healthcare costs. For certain diseases, such as breast and cervical cancer, routine screening has been shown to significantly reduce mortality rates. The American Cancer Society and other health organizations advocate various screening measures, often tied to age, gender, and risk factors, to facilitate early diagnosis and treatment [39].



The need for screening is underscored by the epidemiological principle of "prevalence," which reflects the frequency of a condition in a population at a certain point in time. Early detection through screening can hinder the progression of diseases that may otherwise go unnoticed until they reach advanced stages. For instance, screening for hypertension can lead to lifestyle modifications and treatments that prevent progression to life-threatening cardiovascular diseases [39].

### Methodologies for Early Detection

The methodologies employed in screening and early detection can be broadly categorized into several domains: population-based screening programs, targeted screening, and risk assessment tools.

1. **Population-Based Screening Programs:** These are systematic efforts designed to assess the health of large groups within specific demographics. Examples include mammography campaigns for breast cancer and colonoscopy programs for colorectal cancer. These initiatives often rely on government or non-profit organizations to enhance accessibility and raise awareness about the importance of regular screenings [40].
2. **Targeted Screening:** Unlike universal screening programs, targeted screenings focus on high-risk populations based on specific criteria such as family history, genetic predispositions, or lifestyle factors. Individuals with a family history of breast cancer, for instance, may benefit from earlier and more frequent mammograms. Targeted screenings help optimize resource allocation by concentrating efforts on individuals who are statistically more likely to develop the condition.
3. **Risk Assessment Tools:** Advances in technology and genetic testing have enabled the development of sophisticated risk assessment tools. By integrating various health factors—such as age, weight, lifestyle, and genetic markers—these tools can help healthcare providers ascertain an individual's risk for specific diseases. This data-driven approach supports personalized screening recommendations, allowing for proactive

healthcare measures tailored to each individual's profile [40].

### Challenges in Screening and Early Detection

Despite the clear benefits of screening and early detection, numerous challenges exist that can hinder effective implementation. Public awareness and education remain paramount; there are still misconceptions surrounding the utility and necessity of certain screenings. For example, some individuals may fear the psychological or physical implications of a screening test and, as a result, avoid participation altogether. Stigma, especially around certain conditions like HIV/AIDS and mental health disorders, can further exacerbate this issue [41].

Moreover, disparities in access to healthcare services pose significant barriers to effective screening efforts. Low-income populations, marginalized communities, and individuals residing in rural areas often face obstacles such as transportation issues, lack of healthcare facilities, and insufficient health insurance coverage. These barriers lead to inequitable health outcomes, as certain populations may be disproportionately affected by late-stage diagnoses due to their inability to access timely screenings.

Additionally, the cost-effectiveness of screening programs is a critical area of concern. While preventive care ultimately aims to reduce long-term healthcare costs, the initial investment in wide-scale screening programs can be substantial. Policymakers must weigh the economic implications of implementing such programs against the potential long-term savings of earlier disease detection [41].

### Future Directions

The landscape of screening and early detection in preventive care is rapidly evolving, driven by technological advancements and shifts in healthcare policy. The integration of artificial intelligence (AI) and machine learning into diagnostic tools shows considerable promise in enhancing the accuracy and efficiency of screenings. AI algorithms can analyze vast datasets to identify patterns that may escape human eyes, offering the potential for earlier detection and improved patient outcomes [42].

Telemedicine has also emerged as a valuable tool in promoting screening initiatives. With the increasing reliance on digital health platforms, healthcare

providers can reach underserved populations, offering remote consultations and educating patients on the importance of screenings. Mobile health apps provide individuals with personalized reminders for screenings or assessments based on their health profiles, fostering a culture of proactive health management.

Furthermore, ongoing research into genetic and molecular markers heralds a new era in personalized medicine. As we deepen our understanding of the genetic underpinnings of diseases, future screening initiatives may incorporate genetic testing to refine risk assessments, allowing for even more targeted and individualized preventive strategies [42].

### **Challenges and Barriers to Effective Preventive Care:**

Preventive care plays a crucial role in maintaining public health and reducing the incidence of chronic diseases, yet numerous challenges and barriers hinder its effective implementation across various healthcare systems. Inefficiencies in preventive care not only compromise patient outcomes but also lead to increased healthcare costs and overall societal burden [43].

#### **Socioeconomic Determinants**

At the root of many challenges to preventive care lie socioeconomic determinants that influence an individual's ability to access and engage with healthcare services. Individuals from lower socioeconomic backgrounds often experience a multitude of barriers, including limited access to resources, education, transportation, and healthy food options. For instance, the lack of financial stability may lead individuals to prioritize immediate needs over preventive measures, such as vaccinations, screenings, or regular check-ups. Conversely, those in more affluent demographics generally possess better access to health education, quality care, and can afford preventive services.

Furthermore, social factors such as employment status, education level, and neighborhood conditions significantly shape individuals' health behaviors. For example, individuals with higher education levels may have greater awareness of the importance of preventive care and greater confidence in navigating the healthcare system. Conversely, those with limited education may have less knowledge of preventive services and their benefits, further

exacerbating health disparities. Addressing these socioeconomic challenges necessitates concerted efforts involving community programs, policy reforms, and educational initiatives aimed at fostering a culture of prevention [44].

#### **Barriers to Healthcare Access**

Access to healthcare serves as a fundamental determinant in preventing diseases and managing health outcomes. Despite the existence of various preventive care services, many individuals face significant barriers to accessing these resources. Geographic disparities in healthcare availability mean that rural populations often encounter significant obstacles, including fewer healthcare facilities, limited specialist services, and a lack of transportation options. These challenges can lead to delayed care or entirely neglecting preventive measures.

Additionally, healthcare systems in some regions may be characterized by financial barriers, with high costs associated with insurance premiums, co-payments, or deductibles discouraging patients from seeking preventive care. Uninsured or underinsured populations are particularly vulnerable, as they may forgo essential screenings or vaccinations due to financial constraints. To overcome these access-related barriers, health systems must strive to enhance availability through community outreach, mobile clinics, and telehealth services [45].

#### **Provider-Related Barriers**

The role of healthcare providers is pivotal in facilitating effective preventive care. However, several barriers at the provider level can impede patient engagement in preventive services. One of the primary provider-related challenges is a lack of time during appointments, which can lead to inadequate discussions about preventive care options. Busy healthcare providers may prioritize acute medical issues over preventive counseling, leaving patients uninformed about available services such as immunizations or screenings for chronic diseases.

Moreover, varying levels of training and knowledge among providers concerning preventive care guidelines can also hinder effective delivery. If providers are unaware of the latest recommendations or are not actively engaged in promoting preventive services, patients are less

likely to receive adequate guidance. Continuous education and robust training programs are critical to keeping healthcare providers informed about evidence-based preventive practices and their importance [46].

### **Misinformation and Health Literacy**

Misinformation persists as a formidable barrier to effective preventive care. In the age of digital information, inaccurate representations of health-related information can spread rapidly through social media and online platforms. Public confusion regarding vaccines, screening guidelines, and healthy behaviors often leads to skepticism and reluctance toward preventive services. Misinformation not only creates hesitancy among patients but also fuels public health challenges, such as outbreaks of vaccine-preventable diseases.

Health literacy is another significant factor influencing patient engagement in preventive care. Individuals with low health literacy may encounter difficulty interpreting medical information, leading to misunderstandings about their health conditions and available preventive measures. Enhancing health literacy requires targeted interventions that empower individuals with the knowledge and skills necessary to navigate the complexities of the healthcare system [47].

### **Systemic Healthcare Issues**

Systemic issues within healthcare structures also serve as considerable barriers to the efficient implementation of preventive care. The focus of many healthcare systems is predominantly on acute care rather than prioritizing preventive measures, resulting in a fragmented approach to health management. The current fee-for-service models prevalent in many regions incentivize treatment over prevention, leading to insufficient resources allocated for preventive care initiatives.

Moreover, bureaucratic obstacles within healthcare systems may complicate the delivery of preventive services. Administrative burdens can distract healthcare providers from patient-centered care, further impeding efforts to encourage preventive health measures. This challenge highlights the need for reform-oriented practices and integrated care models aimed at creating a more streamlined and patient-friendly approach to healthcare [48].

### **Future Directions in Collaborative Preventive Health Care:**

Preventive health care serves as the cornerstone of public health systems, aiming to avert diseases before they occur. In an evolving healthcare landscape characterized by technological advancements, shifting demographics, and changing patient expectations, the future of preventive health care is increasingly leaning toward collaborative models. Collaborative preventive health care involves partnerships among various stakeholders, including health care providers, public health agencies, community organizations, and patients themselves [49].

### **Integrated Approaches to Care**

One significant direction for the future of collaborative preventive health care is the integration of various health services. This approach seeks to combine clinical care, public health initiatives, and social services to address the broad spectrum of factors affecting health. Preventive health cannot operate in isolation; it must encompass medical, behavioral, and social determinants of health.

The integration of services can take many forms, including co-locating health services in community settings, fostering multidisciplinary teams, and creating comprehensive care pathways that span the domains of health and social care. For instance, integrating mental health services within primary care can facilitate early identification and management of mental health issues, contributing to better overall health outcomes.

Furthermore, collaborative models can lead to the development of individualized care plans that incorporate community resources. These plans may include referrals to local exercise programs, nutrition workshops, or social support groups, amplifying the impact of traditional preventive measures. As these integrated systems evolve, they are likely to improve patient outcomes while also generating cost savings for health care systems [50].

### **Technological Innovations**

Technology is poised to revolutionize collaborative preventive health care in multiple ways. Digital health tools, such as telehealth, mobile health

applications, and wearable devices, are increasingly facilitating partnerships between patients and health care providers. These technologies enable real-time health monitoring and communication, fostering proactive preventive measures [51].

Telehealth services have become indispensable, especially in light of the COVID-19 pandemic, allowing providers to reach underserved populations and reduce barriers to care. By connecting patients with specialists who might be geographically distant, telehealth expands the reach of preventive services.

Moreover, wearable devices that track vital signs, physical activity, and sleep patterns are empowering individuals to take charge of their health. These technologies not only provide critical data for patients and providers but also encourage a culture of self-management and ongoing engagement with health goals [52].

Data analytics and artificial intelligence are additional technological advancements that can optimize preventive health care. By processing vast amounts of health data, AI algorithms can identify trends, risk factors, and opportunities for intervention at both the individual and population levels. Predictive analytics can help tailor preventive strategies and allocate resources more effectively, enhancing the impact of collaborative efforts across the health care continuum [53].

### **Community Engagement**

Successfully implementing collaborative preventive health care requires meaningful community engagement. Health outcomes are deeply influenced by social determinants, including socioeconomic status, education, and access to resources. Engaging community members in the design and delivery of preventive health initiatives is crucial for promoting ownership and ensuring cultural competence.

The future will see increased collaboration with local organizations and stakeholders who possess intimate knowledge of community needs. Such partnerships can enhance outreach efforts by leveraging local trust networks, addressing barriers to access, and tailoring interventions to specific populations. Community health workers and lay health educators can play vital roles in bridging gaps between formal health systems and communities,

fostering connections that are essential for effective prevention [54].

Moreover, participatory research that includes community voices can inform preventive strategies that are more resilient and sustainable. By involving communities in the decision-making process, health interventions can become more relevant and effective, addressing local priorities and promoting long-term engagement [54].

### **Policy Reform and Collaboration**

The future of collaborative preventive health care also hinges on supportive policy frameworks. Policymakers must recognize the importance of preventive health and allocate appropriate resources to foster collaboration across sectors. This can involve funding for integrated care models, support for community-based initiatives, and incentives for health care providers to engage in preventive practices [55].

An essential aspect of policy reform is encouraging collaboration between various sectors, including health, education, housing, and transportation. An integrated approach to policy-making could create environments that promote health and well-being. For instance, policies aimed at improving public transportation can enhance access to health care services, while affordable housing initiatives can alleviate stressors that negatively affect health.

In addition, regulatory barriers that hinder collaboration—such as restrictive reimbursement policies for preventive services or limitations on data sharing between partners—must be reformed. Fostering an environment where collaborative partnerships can flourish will be key to enhancing preventive health initiatives [56].

### **Equity and Inclusion**

As collaborative preventive health care models continue to evolve, a strategic focus on equity and inclusion will be paramount. Disparities in health outcomes based on race, ethnicity, socioeconomic status, and geography underscore the pressing need for health systems to address these inequities proactively [57].

Future preventive health care initiatives must prioritize vulnerable populations and provide tailored resources to bridge gaps in access. Collaboration with diverse community

organizations can help organizations better understand the unique challenges faced by marginalized communities. By co-designing preventive health strategies with these populations, practitioners can improve acceptability and effectiveness [58].

Additionally, promoting health literacy among diverse populations is crucial. Collaborative efforts that incorporate education and advocacy can empower individuals to make informed health choices, actively participate in preventive health measures, and navigate complex health systems effectively [59].

### Conclusion:

In conclusion, preventive health care is a collaborative endeavor that significantly enhances patient outcomes and fosters healthier communities. The joint efforts of nurses and family physicians are crucial in implementing effective preventive strategies, from conducting routine screenings and immunizations to providing essential health education and lifestyle counseling. By leveraging their unique skill sets and fostering strong communication, these healthcare professionals can create a comprehensive approach to care that empowers patients to take an active role in their health management.

Moreover, addressing the challenges and barriers they face, such as resource limitations and varying patient engagement levels, is vital for improving the effectiveness of preventive care initiatives. As the healthcare landscape continues to evolve, ongoing collaboration and shared responsibility between nurses and family physicians will be essential for cultivating a culture of prevention that not only reduces the burden of chronic diseases but also promotes long-term health and well-being in diverse populations. By embracing this collaborative model, healthcare systems can move towards a more holistic and proactive approach, ultimately leading to improved health outcomes for individuals and communities alike.

### References:

1. Phillips RL, Brungardt S, Lesko SE, et al. The future role of the family physician in the United States: a rigorous exercise in definition. *Ann Fam Med*. 2014;12:250–255. doi: 10.1370/afm.1651.
2. Jolly R. Practice nursing in Australia. Department of Parliamentary Services, Parliamentary Library; 2007.
3. Mohammadi A, Valinejadi A, Sakipour S, et al. Improving the distribution of rural health houses using elicitation and GIS in Khuzestan province (the southwest of Iran). *Int J Health Policy Manag*. 2018;7:336. doi: 10.15171/ijhpm.2017.101.
4. Yousefi M, Aliani S, Valinejadi A, et al. Effect of “Iran's health system evolution plan” and “tariff change” on financial performance of para-clinic units in a big tertiary hospital in Iran. *Koomesh*. 2018;20.
5. Gutkin C. Family physician shortages: Are nurses the answer? *Can Fam Physician*. 2008;54:480–480.
6. Clendon J, Munns A. Community Health and Wellness: Principles of primary health care. Elsevier Health Sciences; 2018.
7. Lundy KS, Janes S. Community health nursing: Caring for the public's health. Jones & Bartlett Learning; 2009.
8. Sarvestani RS, Kalyani MN, Alizadeh F, et al. Challenges of Family Physician Program in Urban Areas: A Qualitative Research. *Arch Iran Med*. 2017;20:446–451.
9. Bazemore A, Petterson S, Peterson LE, et al. More comprehensive care among family physicians is associated with lower costs and fewer hospitalizations. *Ann Fam Med*. 2015;13:206–213. doi: 10.1370/afm.1787.
10. Fazaeli AA, Fazaeli AA, Hamidi Y, et al. Analysis of Iranian household financial participation in the health system: decomposition of the concentration index approach. *Koomesh*. 2018;20:358–365.
11. Whitehead DK, Weiss SA, Tappen RM. Essentials of nursing leadership and management. FA Davis Company; 2009.
12. Nejat M, Tabatabaie HR, Fararouie M, et al. Satisfaction levels with family physician services: a pilot national health programme in the Islamic Republic of Iran. *E Mediterr Health J*. 2017;23:267–273. doi: 10.26719/2017.23.4.267.

13. Alipour J, Safari Lafti S, Askari Majdabadi H, et al. Factors affecting hospital information system acceptance by caregivers of educational hospitals based on technology acceptance model (TAM): A study in Iran. *Iioab J*. 2016;119–123.
14. Moghaddam AV, Damari B, Alikhani S, et al. Health in the 5th 5-years Development Plan of Iran: main challenges, general policies and strategies. *Iran J Public Health*. 2013;42(Supple1):42.
15. Shamian J. The role of nursing in health care. *Rev Bras Enferm*. 2014;67:867–868. doi: 10.1590/0034-7167.2014670601.
16. Ziari A, Ansari M, Valinejadi A. The gap between the service quality and patients' expectations in amir-al-momenin hospital of Semnan university of medical sciences in 2016, Semnan, Iran. *Koomesh*. 2018;221–227.
17. Shojaei S, Yousefi M, Ebrahimipour H, et al. Catastrophic health expenditures and impoverishment in the households receiving expensive interventions before and after health sector evolution plan in Iran: Evidence from a big hospital. *Koomesh*. 2018;20:283–290.
18. San Martín-Rodríguez L, Beaulieu MD, D'Amour D, et al. The determinants of successful collaboration: a review of theoretical and empirical studies. *J Int Care*. 2005;19(Sup1):132–147. doi: 10.1080/13561820500082677.
19. Hopkins J, Irvine F. Qualitative insights into the role and practice of Epilepsy Specialist Nurses in England: a focus group study. *J Adv Nurs*. 2012;68:2443–2453. doi: 10.1111/j.1365-2648.2012.05941.x.
20. Nejatzadegan Z, Ebrahimipour H, Hooshmand E, et al. Challenges in the rural family doctor system in Iran in 2013–14: a qualitative approach. *Fam Practice*. 2016;33:421–425. doi: 10.1093/fampra/cmw033.
21. Fararouie M, Nejat M, Tabatabaie HR, et al. Satisfaction levels with family physician services: a pilot national health programme in the Islamic Republic of Iran. *E Mediterr Health J*. 2017;23:267–273. doi: 10.26719/2017.23.4.267.
22. Schor A, Bergovoy-Yellin L, Landsberger D, Kolobov T, Baron-Epel O. Multidisciplinary work promotes preventive medicine and health education in primary care: a cross-sectional study. *Israel J Health Policy Res*. 2019;8(50):1–11.
23. Levine S, Malone E, Lekachvile A, Briss P. Health care industry insights: why the use of preventive services is still low. 2019.
24. Nissanholtz-Gannot R, Rosen B, Hirschfeld M, Community Nursing Study Group. The changing roles of community nurses: the case of health plan nurses in Israel. *Israel Journal of Health Policy Research*. 2017;6(1):69. doi: 10.1186/s13584-017-0197-5.
25. Bodenheimer T, Mason D. Registered nurses: Partners in transforming primary care. Proceedings of a conference sponsored by the Josiah Macy Jr. Foundation. 2017; New York: Josiah Macy Jr. Foundation.
26. Martin-Misener R, Harbman P, Donald F, Reid K, Kilpatrick K, Carter N, Bryant-Lukosius D, Kaasalainen S, Marshall D, Charbonneau-Smith R, DiCenso A. Cost-effectiveness of nurse practitioners in primary and specialized ambulatory care: systematic review. *BMJ Open*. 2015;5:e007167. doi: 10.1136/bmjopen-2014-007167.
27. Kurtzman E, Barnow B. A comparison of nurse practitioner, physician assistants, and primary care physicians' patterns of practice and quality of care in health centers. *Med Care*. 2017;55(6):615–622. doi: 10.1097/MLR.0000000000000689.
28. Interprofessional Education Collaborative. Core competencies for interprofessional collaborative practice: 2016 update. Washington: Interprofessional Education Collaborative; 2016.
29. Borsky A, Zhan C, Miller T, Ngo-Metzger Q, Bierman AS, Meyers D. Few Americans receive all high-priority, appropriate clinical preventive services. *Health Aff*. 2018;37(6):925–928. doi: 10.1377/hlthaff.2017.1248.
30. Laurent M, van der Biezen M, Wijers N, Watananirun K, Kontaopantelis E, van Vught AJ. Nurses as substitutes for doctors in primary

- care. *Cochrane Database Syst Rev.* 2018;7(7):CD001271. doi: 10.1002/14651858.CD001271.pub3.
31. Chamberlain-Salaun J, Mills J, Usher K. Terminology used to describe health care teams: an integrative review of the literature. *J Multidiscip Healthc.* 2013;6:65–74. doi: 10.2147/JMDH.S40676.
32. World Health Organization. Framework for action on interprofessional education and collaborative practice. Geneva: WHO; 2010.
33. Fraher E, Brandt B. Toward a system where workforce planning and interprofessional practice and education are designed around patients and populations not professions. *J Interprof Care.* 2019;33(4):389–397. doi: 10.1080/13561820.2018.1564252.
34. Zimmerman DR, Verbov G, Edelstein N, Stein-Zamir C. Preventive health services for young children in Israel: historical development and current challenges. *Israel J Health Policy Res.* 2019;8(23):1–8.
35. American Interprofessional Health Collaborative.
36. National Center for Interprofessional Practice and Education.
37. Clinical prevention and population health curriculum framework. Association for Prevention Teaching and Research.
38. Weiss KB, Passiment M, Riordan L, Wagner R. For the National Collaborative for improving the clinical learning environment IP-CLE work group. Achieving the optimal interprofessional clinical learning environment: Proceedings from an NCICLE Symposium.
39. Wagener MN, Miedema HS, Kleijn LM, van Gorp EC, Roelofs PD. Vocational counseling of HIV-infected people: A role for nurses in HIV care. *J Assoc Nurses AIDS Care.* 2015;26:330–339.
40. Hennessy D, Gladin L. World Health Organization. Report on the Evaluation of the WHO Multi-Country Family Health Nurse Pilot Study. Copenhagen: WHO Regional Office for Europe; 2006.
41. Bernier A, Champagne M, Lacroix M, Poitras MÈ. The expected, enacted and desired role of family practice nurses in family medicine groups as perceived by nurses and family physicians. *Sci Nurs Health Pract.* 2020;3:1–15.
42. Dahrouge S, Muldoon L, Ward N, Hogg W, Russell G, Taylor-Sussex R. Roles of nurse practitioners and family physicians in community health centres. *Can Fam Physician.* 2014;60:1020–1027.
43. Vatankhah S, Khalesi N, Ebadifardazar F, Ferdousi M, Naji H, Farahabadi SM. The role of nurse practitioners in health sector reform in Iran (2011). *Iran J Nurs Midwifery Res.* 2013;18:367–370.
44. Elliott L, Kennedy C, Rome A, Cameron S, Currie M, Pow J, et al. Study of the implementation of a new community health nurse role in Scotland. Scottish Government Social Research. 2012 Report No.: DPPAS12757.
45. Campbell S. The newest gatekeepers: Nurses take on the duties of primary care physicians. *Health Care Strateg Manage.* 1997;15:14–15.
46. Maheux B, Côté L, Sobanjo O, Authier L, Lajeunesse J, Leclerc M, et al. Collaboration between family physicians and nurse clinicians: Opinions of graduates in family medicine. *Can Fam Physician.* 2014;60:e416–422.
47. Doshmangir L, Bazayr M, Doshmangir P, Mostafavi H, Takian A. Infrastructures required for the expansion of FPP to urban settings in Iran. *Arch Iran Med.* 2017;20:589–597.
48. Bagnasco A, Catania G, Zanini M, Pozzi F, Giuseppe A, Watson R, et al. Core competencies for family and community nurses: A European e-Delphi study. *Nurse Educ Pract.* 2022;60:103296.
49. Langins M, Borgermans L. Strengthening a competent health workforce for the provision of coordinated/integrated health services. *Int J Integr Care.* 2016;16:1–2.
50. Askari-Majdabadi H, Alaei S, Jafarian N, Safari H, Habibian H. The preferred role of nurses in family physician team. *AIMS Public Health.* 2020;7:213–222.

- 
51. Way D, Jones L, Busing N. Implementation Strategies: Collaboration in Primary Care-Family Doctors and Nurse Practitioners Delivering Shared Care. Ontario College of Family Physicians. 2000.
  52. Schor A, Bergovoy-Yellin L, Landsberger D, Kolobov T, Baron-Epel O. Multidisciplinary work promotes preventive medicine and health education in primary care: a cross-sectional study. *Israel J Health Policy Res.* 2019;8(50):1–11.
  53. World Health Organization. Nursing Beyond the Year 2000: Report of a WHO Study group (meeting held in Geneva from 12 to 16 July 1993). World Health Organization. 1994.
  54. Reel S, Lauder W, Sharkey S. The development of family health nurses and family nurse practitioners in remote and rural Australia. *Aust Fam Physician.* 2003;32:750–752.
  55. Tyrer P, Crawford M, Cawood M, McPherson S, Boggis C, Weir C, et al. Social skills training for people with severe mental health problems: A systematic review. *Psychol Med.* 2006;36:1553–1561.
  56. Fazaeli AA, Fazaeli AA, Hamidi Y, et al. Analysis of Iranian household financial participation in the health system: decomposition of the concentration index approach. *Koomesh.* 2018;20:358–365.
  57. Tanabe P, Ethridge D, Talamantes G, et al. The Impact of Emergency Department Crowding on Patient Outcomes: A Review. *J Emerg Med.* 2019;56:882–896.
  58. Alipour J, Safari Lafti S, Askari Majdabadi H, et al. Factors affecting hospital information system acceptance by caregivers of educational hospitals based on the technology acceptance model (TAM): A study in Iran. *Iioab J.* 2016:119–123.
  59. Alshahrani Y, Arnold R, Opstal T, et al. The effectiveness of case manager roles on the health outcomes of patients in Primary Care: A systematic review. *Can Fam Physician.* 2020;66:e196–205.