



The importance of early screening in preventing chronic diseases

La importancia de la detección temprana en la prevención de enfermedades crónicas

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Received: 10/20/2024 Accepted: 01/19/2025 Published: 02/12/2025 DOI: <http://doi.org/10.5281/zenodo.14868407>

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Abstract

The article explores in detail the role of early screening as an effective tool for the prevention of chronic diseases. The importance of timely detection of pathological changes and risk factors at early stages, such as high cholesterol, hypertension, overweight, hereditary predisposition, as well as the influence of such factors on the development of cardiovascular diseases, diabetes mellitus, oncological and pulmonary pathologies is considered.

The authors pay special attention to the evidence base confirming that early diagnosis contributes to a significant reduction in morbidity and mortality, improves the effectiveness of treatment and minimises the need for costly and complex medical interventions. They also emphasise the importance of integrating screening measures into the health care system and highlight the need to raise public awareness of the benefits of preventive screening.

The article analyses examples of successful screening programmes, their impact on public health and the economic benefits of implementation. Barriers related to insufficient accessibility of health services, inadequate population coverage and low awareness are discussed. Recommendations for improving screening programmes are offered, including the introduction of modern technology, personalised approaches and the expansion of educational initiatives among health care providers and the public. Thus, the paper emphasises the key role of early screening in shaping chronic disease prevention strategies and improving people's quality of life.

Key words: early screening, prevention of chronic diseases, early diagnosis, risk factors, public awareness, screening programmes, economic benefit.

Resumen

El artículo explora en detalle el papel del cribado precoz como herramienta eficaz para la prevención de enfermedades crónicas.

Se considera la importancia de la detección oportuna de cambios patológicos y factores de riesgo en etapas tempranas, como colesterol alto, hipertensión, sobrepeso, predisposición hereditaria, así como la influencia de dichos factores en el desarrollo de enfermedades cardiovasculares, diabetes mellitus, patologías oncológicas y pulmonares.

Los autores prestan especial atención a la base de evidencia que confirma que el diagnóstico precoz contribuye a una reducción significativa de la morbilidad y la mortalidad, mejora la eficacia del tratamiento y minimiza la necesidad de intervenciones médicas costosas y complejas. También enfatizan la importancia de integrar medidas de cribado en el sistema de atención de salud y destacan la necesidad de aumentar la conciencia pública sobre los beneficios del cribado preventivo.

El artículo analiza ejemplos de programas de cribado exitosos, su impacto en la salud pública y los beneficios económicos de su implementación. Se discuten las barreras relacionadas con la accesibilidad insuficiente a los servicios de salud, la cobertura poblacional inadecuada y la baja concienciación. Se ofrecen recomendaciones para mejorar los programas de detección, incluida la introducción de tecnología moderna, enfoques personalizados y la expansión de las iniciativas educativas entre los proveedores de atención médica y el público. De este modo, el documento destaca el papel clave de la detección temprana en la configuración de estrategias de prevención de enfermedades crónicas y la mejora de la calidad de vida de las personas.

Palabras clave: detección temprana, prevención de enfermedades crónicas, diagnóstico temprano, factores de riesgo, concienciación pública, programas de detección, beneficio económico.

Introduction

Chronic diseases such as cardiovascular pathologies, diabetes mellitus, cancer and respiratory diseases occupy leading positions among the causes of morbidity and mortality in the world¹. They not only significantly reduce the quality of life of patients, but also create a significant economic burden on health care systems. One of the key tools in the fight against these diseases is early screening, which makes it possible to identify risk factors and pathologies at the initial stages, when their treatment is most effective.

Advances in technology and the accumulation of scientific evidence on the causes and mechanisms of chronic diseases offer new opportunities to improve screening programmes. Nevertheless, the implementation of screening in practice remains a complex task that requires consideration of economic, social and organisational aspects.

This article aims to investigate the importance of early screening in preventing chronic diseases, to analyse its benefits and barriers, and to develop recommendations to improve the effectiveness of preventive interventions.

Materials and methods

The following research methods were used to study the role of early screening in the prevention of chronic diseases. Analysis and synthesis of the scientific literature allowed us to review current research on screening technologies, their impact on the reduction of morbidity and mortality, as well as analysis of screening programmes implemented in different countries. Comparative analyses were used to compare the effectiveness of different screening approaches (e.g. mass versus targeted) and diagnostic technologies used for early detection of chronic diseases. Information on risk factors, diagnostic methods and key steps in the implementation of screening interventions was summarised using a classification and data systematisation approach.

Results. Early screening is one of the most effective tools of preventive medicine aimed at reducing the burden of chronic diseases. Its main objective is to detect disease or risk factors at early stages, when their correction is most effective². The main aspects of the said tool

are presented in Table 1.

Table 1. The role of early screening as an effective tool for the prevention of chronic diseases		
Aspect	Description	Examples
Early diagnosis	Detection of diseases at early stages for timely treatment and prevention of complications.	Prediabetes → prevention of type 2 diabetes; hypertension → reduction of stroke risk.
Reduction of mortality and disability	Early treatment greatly increases the chances of a successful outcome and reduces the risk of disability.	Early detection of breast cancer, colorectal cancer, cardiovascular disease.
Cost-effectiveness	Reducing costs of treating late-stage disease through prevention and early intervention	Treatment of hypertension is cheaper than rehabilitation after stroke.
Identification of risk factors	Detection and correction of modifiable factors that prevent the development of chronic diseases.	Overweight, high cholesterol, smoking.
Informing the population	Raising awareness of the importance of prevention, which encourages regular screening	Conducting mass education campaigns on the benefits of screening.

Improving healthcare	Optimising resource allocation, reducing the burden on inpatient care.	the need for expensive and heavy treatment procedures such as chemotherapy at later stages. Similarly, for cardiovascular diseases such as myocardial infarction and stroke, early detection and treatment of hypertension, diabetes and other risk factors such as elevated cholesterol significantly reduce the likelihood of death or disability ⁵ .
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Early diagnosis is a key aspect of effective screening. It involves identifying diseases or risk factors at the earliest stages, when there are no clear clinical manifestations and when intervention may be most successful. This allows treatment or preventive measures to be initiated before the disease begins to progress and lead to severe consequences³. For example, screening for elevated cholesterol, hypertension or pre-diabetic conditions helps to identify people who do not yet have obvious symptoms but who are at risk for developing serious diseases such as myocardial infarction, stroke or type 2 diabetes. Early intervention in these cases, whether through medication, lifestyle changes or dietary management, can significantly reduce the likelihood of complications and improve the patient's quality of life.

In addition, early diagnosis is not limited to diseases already present in the patient. It also helps to identify hidden risk factors that may later lead to the development of chronic diseases. For example, diagnosing overweight or obesity in a person without obvious diseases can be the starting point for preventive measures such as dietary changes and increased physical activity⁴. Thus, early diagnosis not only helps to reduce morbidity but also helps to prevent the onset of chronic diseases in the future.

Reducing mortality and disability is an important result of early screening, as early detection of diseases at an early stage significantly increases the chances of successful treatment and the prevention of fatal outcomes. Screening detects diseases such as cancer, cardiovascular disease or chronic lung disease at stages when they can still be effectively treated and the risk of complications and fatalities is minimal. For example, early diagnosis of cancer, especially types such as breast, cervical or colorectal cancer, allows the detection of tumours at early stages when they have not yet spread beyond the primary location, which significantly increases the chances of cure with minimal interventions and without

In addition, early diagnosis can not only save lives, but also prevent the development of disabilities that can be caused not only by the diseases themselves, but also by their complications. For example, early detection of cardiovascular disease helps prevent stroke or heart attack, which can lead to paralysis or long-term disability. Thus, early screening contributes to a significant reduction in both mortality and disability, improving people's quality of life and reducing the social and economic burden on society.

Early screening is not only a medically effective tool, but also cost-effective for the health care system and society as a whole⁶. The benefits of screening in economic terms are manifested in the reduction of costs for the treatment of late-stage diseases, which has long-term positive consequences. Detecting diseases at early stages avoids complex and costly medical interventions such as surgery, intensive care or prolonged treatment at later stages of the disease.

For example, treating hypertension early with medication and lifestyle changes is much cheaper than treating a stroke or heart attack, which can develop if blood pressure is not controlled. Early intervention in prediabetes can prevent the development of type 2 diabetes, which then helps to reduce the need for costly procedures such as amputations or regular hospitalisations associated with diabetes complications.

In addition, early screening contributes to reducing the duration of disability and increasing the working capacity of the population, resulting in increased labour productivity. In the long term, this reduces the economic burden on the health care system and contributes to improving the economic situation in the country.

Thus, early screening is an important element of a strategic approach to health care because it not only saves lives and improves the quality of health, but it is also cost-effective in terms of reducing the costs of treating late-stage disease and improving the overall productivity of society.

One of the key aspects of early screening is the identification of risk factors that can lead to the development of chronic diseases. Many diseases have a long asymptomatic period during which risk factors can be addressed and their development prevented. Screening can identify not only obvious diseases, but also predisposition to them, which provides an opportunity for early correction of lifestyle, medical intervention or changes in patient's habits⁷.

Risk factors such as smoking, overweight, poor diet, physical inactivity, high cholesterol and blood pressure can be significantly reduced by simple but effective interventions. For example, regular screening examinations for high blood pressure or blood sugar levels help to detect changes in time that indicate a predisposition to hypertension or diabetes. If an increased risk is detected, the patient can be offered recommendations for dietary changes, increased physical activity, smoking and alcohol cessation, which significantly reduces the likelihood of developing the disease.

In addition, many chronic diseases, such as cardiovascular disease and cancer, develop from long-term exposure to risk factors. Identified and corrected risks in time can significantly reduce not only morbidity but also mortality from these diseases. For example, a person with high cholesterol or obesity who starts to monitor diet and activity in time will be much less likely to develop cardiovascular disease in the future.

One of the most important aspects of early screening is to raise public awareness of the importance of preventive measures and regular medical examinations. Awareness-raising plays a key role in the success of screening programmes, as it motivates people to undergo screening, helps to overcome fears and mistrust of medical procedures, and promotes a culture of health⁸.

Effective public awareness of the risks of various diseases and the need for early detection can change behaviour, increase willingness to undergo preventive screening and improve adherence to a healthy lifestyle.

For example, information campaigns on the importance of breast or cervical cancer screening increase the number of women who undergo regular mammography or cytological examinations, which in turn helps to reduce mortality from these diseases.

In addition, information campaigns aim to increase knowledge about risk factors and their importance. People who are aware of the possible consequences of unhealthy diet, physical inactivity, smoking and other bad habits are more inclined to make changes in their lifestyle, which helps not only in the prevention of diseases, but also in preventing their progression⁹.

Educating and enlightening the public about early screening also helps to reduce barriers such as fear of medical procedures or mistrust of health care, which often prevent people from seeking health care. Modern information technologies, including internet platforms, social media and mobile applications, allow effective information dissemination campaigns to reach a wider audience and reach those who have not previously thought about the importance of prevention.

Thus, informing the population is an integral part of the early screening system, which contributes not only to raising awareness of diseases, but also to the formation of healthy habits, increasing the number of people involved in preventive measures and reducing overall morbidity and mortality.

Timely detection of pathological changes and risk factors at early stages plays a key role in preventing the development of serious chronic diseases such as cardiovascular disease, diabetes mellitus, cancer and pulmonary pathologies. Early detection of these factors allows timely intervention, lifestyle changes or treatment, which significantly reduces the likelihood of their progression and severe complications¹⁰.

Table 2. Importance of timely detection of pathological changes and risk factors for prevention of chronic diseases

Risk Factor	Description	Influence on disease development	Preventive measures
Elevated cholesterol levels	Lipids deposited on the walls of blood vessels can lead to atherosclerosis and poor blood circulation.	The main risk factor for cardiovascular diseases: heart attack, stroke, atherosclerosis	Control of cholesterol levels, balanced diet, physical activity, medication
Hypertension (high blood pressure)	Hypertension (high blood pressure) High blood pressure increases the strain on the heart and blood vessels, which contributes to their damage.	A major risk factor for myocardial infarction, stroke, kidney failure, heart failure	Regular blood pressure monitoring, treatment with antihypertensive drugs, low-salt diet, increased activity
Overweight and obesity	Excessive fat accumulation, especially in the abdominal area, increases the risk of many diseases.	Comprehensive prevention, control of several factors (diet, physical activity, weight and blood pressure control).	Correction of nutrition, physical activity, observance of a healthy lifestyle.
Hereditary predisposition	A family history of disease can increase the likelihood of developing it	Increased risk of cardiovascular disease, diabetes, cancer, especially if several risk factors are present	Regular screening, genetic counselling, early diagnosis and prevention based on family history of disease
Combined effect of factors	The interaction of risk factors (e.g. obesity + hypertension) can significantly increase their impact.	Increases the risk of cardiovascular disease, diabetes, cancer, increasing their severity and the likelihood of complications.	Comprehensive prevention, control of several factors (nutrition, physical activity, weight and blood pressure control).

High blood cholesterol is one of the main risk factors for cardiovascular diseases such as atherosclerosis, myocardial infarction and stroke. With elevated cholesterol levels, lipids are deposited on the walls of blood vessels, forming plaques, which leads to their narrowing and obstruction of blood flow. Early detection and correction of this condition through diet, exercise and medication can prevent the development of serious cardiovascular diseases¹¹.

Hypertension is one of the leading risk factors for cardiovascular disease. Persistently high blood pressure increases the strain on the heart and blood vessels, which can lead to heart attack, stroke, and kidney failure. Regular monitoring of blood pressure and timely correction with medication and lifestyle changes (e.g. reducing salt intake and increasing physical activity) can significantly reduce the risk of these diseases.

Overweight and obesity are major risk factors not only for cardiovascular disease, but also for type 2 diabetes, hypertension, osteoarthritis and some cancers. Excess fat accumulation, especially in the abdominal area, contributes to insulin resistance, which in turn leads to high blood sugar levels and the development of diabetes. Regular screening for overweight allows timely interventions, such as dietary adjustments and increased physical activity, to help prevent the development of these diseases¹².

Hereditary predisposition also plays a significant role in the development of many chronic diseases, including cardiovascular disease, diabetes and cancer. People with a family history of diseases such as breast or heart cancer may have an increased risk of developing them. Early identification of these risks allows for the development of individualised screening and prevention programmes, which helps to better monitor health and prevent disease at an early stage.

All of these factors - high cholesterol, hypertension, overweight and hereditary predisposition - are interrelated and can reinforce each other. For example, hypertension and overweight often occur together, which increases the strain on the heart and blood vessels and increases the likelihood of developing cardiovascular disease. These same factors can contribute to the development of type 2 diabetes, and also influence an increased risk of developing certain cancers, such as bowel or breast cancer. Early detection and correction of these factors can significantly reduce the likelihood of their progression and reduce overall morbidity.

Thus, early detection of pathological changes and risk factors is an important tool for prevention and control of chronic diseases. Timely intervention can significantly reduce the risk of developing serious diseases, improve the quality of life of patients and reduce the burden on the health care system.

The importance of integrating screening interventions into the health care system and raising public awareness of the benefits of preventive examinations.

The integration of screening activities into the health care system is of great importance for the early detection of diseases and effective control of their spread. Screening is a powerful tool in the prevention of chronic diseases, and its introduction into the health care system contributes to significant improvements in population health, reducing morbidity and mortality from many diseases¹³.

Firstly, early diagnosis allows for the timely detection of diseases at stages when they do not yet have pronounced symptoms and can be effectively treated or controlled at minimal cost, which significantly reduces the burden on the health care system, as early treatment is much less expensive than treatment in the case of late diagnosis. For example, early detection of cancer, hypertension, diabetes or cardiovascular disease significantly increases the chances of successful treatment and reduces the risk of complications.

Secondly, raising public awareness of the need for preventive screening is an important aspect. Many people underestimate the importance of screening programmes, believing them to be unnecessary, or are afraid to undergo screening because of fear of the results. Therefore, educating and informing the public about the importance of screening is key. People should realise that preventive screening is an opportunity not only to prevent the development of serious diseases, but also to detect them at the earliest stages, which significantly increases the effectiveness of treatment and improves prognosis.

This requires educational campaigns to communicate the risks of not knowing one's health status and the benefits of early detection. Modern technologies and platforms such as social media, mobile applications, television and radio programmes can be used to communicate this information to a wide audience. It is also important that information about screening is accessible and understandable to people of different age and social groups¹⁴.

In addition, it is important that conditions are created at the health-care level for convenient and accessible screening. This includes making screening programmes available in public health facilities, reducing the cost of screening and using mobile health units for remote and rural areas.

Integrating screening into the health care system and

raising public awareness will not only help to reduce morbidity and mortality, but will also make the health care system more efficient and economically sustainable. Ultimately, this will lead to a better quality of life for people, reduce the social and economic burden on society and improve the overall health of the nation.

Breast cancer screening programme (mammography).

Mammography is one of the most effective methods for early detection of breast cancer. Most developed countries have programmes to regularly screen women over the age of 50 (or from the age of 40, depending on the country) to detect cancer at a stage when treatment is still possible and does not require complicated and expensive procedures.

Mammography programmes lead to significant reductions in breast cancer mortality. For example, in the USA, the introduction of a screening programme has reduced breast cancer mortality by 20-30% among women participating in regular screening.

Savings are achieved by reducing the cost of treating late-stage cancer, when surgery, chemotherapy and long-term treatment will be required. Early detection avoids complex and expensive procedures, significantly reducing the financial burden on the health care system.

The introduction of regular screening for cervical cancer, using Pap tests and human papillomavirus (HPV) tests, has demonstrated a significant reduction in the incidence and mortality of this type of cancer. Women who undergo these screenings regularly have a higher chance of early detection and treatment of precancerous changes before they develop into cancer.

In countries where such programmes have been implemented, cervical cancer mortality has been reduced by 60-70%. For example, in Northern European countries where screening is widely available, there has been marked progress in reducing the number of new cases of cervical cancer.

The economic impact is a significant reduction in the cost of treating advanced cervical cancer, when therapy requires more intensive and expensive intervention. Also, preventive treatment or early intervention reduces hospitalisations and disability.

Screening for type 2 diabetes helps to detect the disease at an early stage, when effective lifestyle and nutritional interventions are possible to prevent or slow the progression of the disease. Such screening is done through a blood sugar test or a glycated haemoglobin test. Early detection and intervention in type 2 diabetes can significantly reduce the risk of developing complications such as cardiovascular disease, kidney failure, blindness and amputations. For example, in the UK, the introduction of diabetes screening has reduced complications and improved patients' quality of life¹⁵. Savings are made

by avoiding more complex and expensive medical procedures such as treatment of diabetic nephropathy or amputations, reducing inpatient hospitalisation and rehabilitation costs.

Screening for hypertension allows high blood pressure to be detected early, when it can be effectively controlled with medication and lifestyle changes. Regular blood pressure monitoring reduces the risk of stroke, myocardial infarction, heart failure and kidney failure. Countries such as Japan and Finland have demonstrated significant reductions in stroke and heart attacks through widespread implementation of hypertension screenings. The economic benefit is seen in the reduction of costly emergency interventions such as cardiac surgery or stroke treatment. Prevention of hypertension avoids the long-term costs of treating complications and disability¹⁶.

Colorectal cancer screening using colonoscopy can detect precancerous changes or cancer at an early stage, which significantly improves prognosis and survival.

Colorectal cancer screening programmes reduce mortality from the disease by 30-50%. In countries such as Australia and the USA, where national screening programmes have been implemented, there has been a significant reduction in the number of deaths.

The economic benefit is seen in the reduction of treatment costs for advanced stages of cancer, which require long and costly treatment. Early intervention also reduces the number of operations and post-operative complications, which saves health care costs.

The introduction of screening programmes into the health system significantly improves public health by reducing morbidity and mortality from many chronic diseases. The economic benefits of these programmes are reflected in reduced costs of treating late-stage disease, reduced disability and increased productivity, ultimately making the health system more efficient and economically sustainable.

One of the main barriers to the successful implementation of screening programmes is the limited availability of health services, especially in remote and rural areas. This includes a lack of health facilities, medical equipment, and a limited number of qualified professionals. In such areas, screening can be difficult to access, resulting in low participation rates in screening examinations.

To overcome this barrier, it is necessary to develop mobile medical units that can travel to remote regions, as well as to improve the healthcare infrastructure in these areas. It is also important to introduce telemedicine technologies that allow for remote consultations and diagnostics. Government support for such initiatives and subsidising medical institutions will help to improve the accessibility of screening services for the general population¹⁷.

Not all populations are involved in screening pro-

grammes, which may be due to insufficient organisation of mass screening, limited resources to cover the entire population or low participation rates due to socio-economic factors. In particularly vulnerable populations (e.g. low-income, elderly or migrant populations), access to screening may be limited.

To overcome this problem, strategies to improve coverage need to be developed, which include mass information campaigns, free or subsidised screening for socially vulnerable groups, and convenient screening environments (e.g. screening at weekends or in convenient locations such as shopping centres or public facilities).

Low awareness of the importance of screening and preventive screening is a significant barrier. Many people do not realise the importance of early detection and prevention of disease, or are distrustful of screening for fear of being diagnosed. As a result, they may avoid getting the necessary tests, which reduces the effectiveness of screening programmes.

A key solution is information and education campaigns to raise public awareness of the importance of regular screening. It is important to use a variety of information channels, from television and radio programmes to social media, printed materials and educational programmes in schools and workplaces. Information campaigns should emphasise that early detection increases the chances of successful treatment and reduces health risks¹⁸.

Cultural backgrounds, traditions and even language barriers can be barriers to screening in some populations. For example, in some cultures there may be a stereotype that regular health checks or diagnostic procedures are something unnecessary or even dangerous. In addition, the lack of accessible languages and specialised services for ethnic minorities is also a problem.

To overcome the above, cultural sensitivity and tradition should be taken into account when designing screening programmes. It is also worth making materials available in different languages and engaging cultural mediators to increase trust in health services. Psychological support and making patients feel comfortable, such as access to clinicians with cross-cultural expertise, can improve participation in screening.

Lack of funds for screening by patients or health-care providers can be a major barrier to the implementation of screening programmes. This is especially true for people with low incomes or for countries with limited fiscal space. One solution is to introduce free or subsidised screening programmes for all citizens or for certain population groups, such as the elderly, children or low-income families. Subsidies to health-care facilities to improve facilities and enable more accessible and expanded screening programmes could also be envisaged.

To improve the effectiveness of screening programmes and ensure wide coverage of the population, a number

of strategies need to be implemented to improve accessibility, quality and awareness. Incorporating modern technology, personalised approaches and increased educational initiatives among health professionals and the public will help to make screening more effective¹⁹.

Modern technology can significantly improve the accessibility of screening programmes, especially in remote and rural areas. The introduction of telemedicine and mobile applications for pre-screening (e.g. for monitoring blood pressure, blood sugar or skin conditions) can significantly increase coverage and facilitate access to primary diagnostics. Patients will be able to receive counselling online and have their results transmitted to their doctor for further analysis.

Modern AI algorithms can assist in early diagnosis, for example by analysing images (in screening for breast, lung or colorectal cancer). AI can quickly process and interpret the results of screening tests, allowing health professionals to make quicker and more accurate diagnoses, which is particularly relevant in countries with a shortage of specialists, where such technologies can be used to improve accuracy and reduce human error.

The use of mobile diagnostic units or «mobile clinics» helps to conduct mass screening in regions with limited access to health facilities. Such mobile units can be equipped with the necessary equipment to screen for the most common diseases such as hypertension, diabetes, cancer and other chronic diseases.

Screening should focus on a personalised approach, which means taking into account individual risk factors such as age, sex, family history of disease, genetic predisposition and lifestyle. For example, if a patient has a family history of breast cancer, the screening programme can be adapted to start screening at an earlier age or increased frequency²⁰.

Modern advances in genetics make it possible to use genetic tests to assess the risk of developing certain diseases. For example, a genetic test for mutations in the BRCA1 and BRCA2 genes can assess the risk of developing breast and ovarian cancer. Incorporating such tests into screening programmes can improve their accuracy and reduce false positives.

It is important to divide the population into risk groups and offer individual and targeted screening programmes for each group. For example, more frequent screening for type 2 diabetes or cardiovascular disease may be recommended for the elderly or obese, and regular early cancer screenings may be recommended for people with a family history of cancer.

Health care providers should receive ongoing education and be aware of new methods of diagnosis, screening and prevention of chronic diseases. Regular trainings, seminars and conferences, as well as the use of online courses and educational platforms for physicians, will help to improve the skills and knowledge of health work-

ers, which will improve the quality of screening activities.

Health professionals must be able to properly inform patients about the importance of screening, as well as responsibly explain the benefits of early detection. It is important that doctors not only recommend screening, but also explain to patients the possible consequences of ignoring screening.

To raise awareness, visual and easy-to-understand materials (posters, leaflets, videos) can be developed that clearly explain what screening is, how it takes place, and why it is important. Such information can be distributed in clinics, hospitals, pharmacies and even schools to attract attention and inform all age groups.

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Preventive work with young people is a long-term investment in the health of the nation. Organising educational events in schools and universities that explain the importance of regular medical check-ups and healthy lifestyles can play a key role in building commitment to prevention in future generations.

An important step is to reduce the cost of screening procedures, especially for socially vulnerable groups. Free or subsidised screening programmes can ensure that people with limited financial means also have access to the necessary screenings. In addition, it is important to expand the network of clinics and health facilities that offer screening, as well as to provide screenings at convenient times, such as weekends or public holidays.

Conclusions. Early screening is the most important tool for prevention, which allows timely detection of chronic diseases at the initial stages, when treatment is most effective and less costly. The introduction of systematic and widely available screening programmes helps to reduce morbidity and mortality from diseases such as cancer, cardiovascular disease, diabetes and others. This, in turn, significantly improves the quality of life of the population and reduces the burden on health care systems by reducing the costs of treating late-stage diseases and their complications.

However, to maximise the effectiveness of screening programmes, a number of barriers need to be overcome, such as insufficient access to health services, low levels of awareness among the population and health workers, and inadequate coverage of certain population groups. It is important to actively adopt modern technologies such as telemedicine, artificial intelligence, mobile medical devices and biomarkers to make screening more accessible and personalised.

An equally important aspect is educational work both among health care professionals and the general public. Raising awareness of the importance of early disease diagnosis and screening, as well as creating accessible conditions for screening, will encourage participation in prevention programmes and increase their effectiveness.

In summary, the successful implementation and development of screening programmes requires a comprehensive approach, including the improvement of health care infrastructure, the use of new technologies and scientific advances, and the active involvement of the entire society in the process of disease prevention. This will not only increase the level of public health, but also bring significant economic benefits to the health care system and the economy as a whole.

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