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RESEARCH ARTICLE

Trends in screening medical and environmental services in the TES-therapy system

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ABSTRACT

Screening examination is sometimes hampered by insufficient readiness of the population for it, often this is due to the fact that individuals incorrectly assess their state of health and are not ready to change their lifestyle to prevent the disease, as well as to undergo adequate treatment when the disease has already developed. Particular difficulties arise when repeated examinations are required. The disadvantage of screening so far has been that it has usually been aimed at identifying not a group of diseases, but any one of them. The development of an integral approach, i.e., the identification of the main non-communicable diseases, will significantly eliminate this drawback.

When conducting screening, it is necessary to take into account its economic feasibility. In particular, a sharp decrease in the incidence may lead to the termination or less frequent screening examination, such an example is the detection of pulmonary tuberculosis.

Screening in medical genetics is one of the methods for early detection of genetically determined diseases and individual syndromes (stunting, albuminuria, bacteriuria, high blood pressure, etc.). The most effective was the identification of hereditary metabolic defects. With the timely identification and treatment of such patients, it is possible to prevent the development of diseases that usually lead to early disability and even death. Screening examination is widely used in pediatrics, since the detection of various diseases in children and their early treatment often makes it possible to exclude their manifestation at an older age. Thus, screening newborns for phenylketonuria and subsequent administration of a diet low in phenylalanine to patients prevents the development of mental retardation, convulsive syndrome and other symptoms of the disease.

KEYWORDS:
biodiversity, ecosystem, medical ecology, green economy, monitoring, innovation, cluster, screening, investments, recreation, ecotourism.

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INTRODUCTION

Screening in medicine is a methodological approach used, in particular, in medicine for mass examination of the population (its individual contingents) in order to identify a specific disease (group of diseases) or factors contributing to the development of this disease (risk factors). For these purposes, a screening examination is carried out, that is, a testing method is used with the help of which the selection of persons in need of appropriate medical intervention is carried out, as well as the prevalence of a particular disease and the presence of factors suggesting its occurrence are determined [1, 11].

Health systems research is a coordinated study of factors influencing the health of the population (nutrition, housing, education, employment, etc.), as well as factors directly related to health: the use of medical services and activities for their provision [2,8].

The term Screening, often used by the World Health Organization (WHO), for chronic conditions, defines screening as "The presumptive identification of an unrecognized disease

or defect through tests, examinations, or other easily used procedures."
Screening tests make it possible to isolate from the environment of apparently healthy people those who are likely to have the disease and those who probably do not. The screening test is not intended to be diagnostic. Individuals with positive or suspicious results should be referred to their doctors for diagnosis and appropriate treatment". Screening usually comes from the investigator, person or organization providing care, and not from the patient with the complaint. Screening usually focuses on chronic illnesses and on identifying illnesses for which medical attention is not yet available. Screening detects risk factors, genetic predispositions, and precursors or early manifestations of the disease. There are different types of medical screening, each with its own focus:

- Mass screening simply means screening the entire population [3].

- Complex or multivariate screening involves the use of different screening tests at the same time.

- Preventive screening - is aimed at early detection of diseases in apparently healthy people, control over which can be more successful if they are detected at an early stage. Example: mammography to detect breast cancer. The characteristics of the screening test include accuracy, estimated number of cases detected, accuracy, reproducibility, sensitivity, specificity and reliability of those detected before the clinical period, measurements).

- Selective screening - is carried out in the absence of symptoms, but in the presence of one or more risk factors for the development of the desired disease, for example, indications of diseases of the next of kin, lifestyle characteristics, or belonging to a population with a high prevalence of the corresponding disease.

- Genetic screening is the use of molecular biology techniques to detect mutations that are present in humans and increase the risk of developing a disease, such as the BRCA1 and BRCA2 genes, which significantly increase the risk of breast and ovarian cancer in women. There can be ethical issues with genetic screening, such as notifying people that they are at increased risk for a disease for which there is no effective treatment. Problems can also arise if the diagnostic result can lead to problems with employment and insurance.

Systematic (non-selective) screening is performed for all individuals in a specific population, for example, ultrasound screening for chromosomal pathology, which is performed in the first trimester of pregnancy. The population for this screening is all pregnant women without exception [4,16].

Selective screening is carried out among people exposed to certain risk factors that can cause a particular disease. An example of such screening is a study of medical workers for the incidence of hepatitis B and C, HIV, syphilis, because representatives of these professions come into contact with the biological fluids of potentially sick people and, accordingly, have an increased risk of contracting these infectious diseases [5,10].

Screening terms and concepts:

- Screening level — the "normal" limit or split point beyond which a screening test is considered positive.

-Sensitivity and specificity.

- The predictive value of the diagnostic test.

- Likelihood ratio.

- False positive results

- False negative results

METHODOLOGY

Screening in medicine (English screening sifting) is a methodological approach used, in particular, in medicine for mass examination of the population (its individual contingents) in order to identify a specific disease (group of diseases) or factors contributing to the development of this disease (risk factors). For these purposes, a screening examination is carried out, that is, a testing method is used, with the help of which the selection of persons in need of appropriate medical intervention is carried out, as well as the prevalence of a particular disease and the presence of factors predisposing to its occurrence are determined [6, 14].

On the basis of the results of the screening examination, the subjects are classified according to the presence of a disease and factors predisposing to it. Thus, in the epidemiology and prevention of cardiovascular diseases, screening makes it possible to classify the surveyed population according to such characteristics as smoking, alcohol consumption, blood pressure level, and the ratio of certain forms of coronary heart disease in the population. Based on the assessment of individual risk factors and their combinations, tables are developed that characterize the degree of risk of new cases of the disease [13].

The main requirement when conducting a screening survey is the availability of appropriately trained personnel and a standard approach to identifying the trait under study and assessing the results obtained. The methods used must be sufficiently simple, reliable and reproducible. It is necessary that they have sufficient sensitivity and high specificity [6].

Screening involves an active mass examination of the population, regardless of whether a person asked for help or not, thanks to this, it is possible earlier and timely detection of the disease or predisposition to it.

Screening examinations can be multi-stage:

- the first stage is the identification of the disease or factors predisposing to it;

- the second stage - a more in-depth examination in order to clarify the diagnosis and make a decision on the necessary

medical intervention.

For example, at the first stage, the frequency of occurrence of arterial hypertension is revealed, and at the second stage, the reasons for the increase in blood pressure are clarified in clinical or outpatient settings, this makes it possible to obtain data on the frequency of hypertension and certain forms of symptomatic hypertension.

Screening examination can be carried out among various groups of the organized (working in factories, plants, in institutions, students of various educational institutions) and unorganized (at the place of residence) population. In health care practice, it is used for mass preventive gynecological examinations, fluorography, recently screening has become widely used in cardiology, oncology, pharmacology and medical genetics.

The role of screening is becoming especially important in clinical examination of the population and primary prevention, due to the need to examine large contingents of the population according to uniform standard criteria, an intensive search for automated and semi-automated screening methods is currently being carried out. Automata and semiautomatic devices are being developed for measuring blood pressure, polling the population, measuring height and weight (mass) of the body. An essential place is occupied by the development of new, modern, reliable and generally available methods applicable for mass surveys, as well as reliable, high-throughput equipment.

RESULTS

In the practice of health care in many countries, screening examinations among newborns for phenylketonuria, hypothyroidism, alpha-1-antitrypsin deficiency, cystic fibrosis, galactosemia are used. If a patient is identified, he is examined again, the diagnosis is confirmed, and specific treatment is carried out with regular biochemical monitoring of its effectiveness. The family of the patient is recommended medical genetic counseling [7,12].

In populations with a high frequency of this or that hereditary metabolic defect, so-called prospective screening is used in order to identify heterozygous carriers of this defect, who receive medical and genetic counseling before the birth of a child. In the presence of such a defect in both parents, which is a real prerequisite for the appearance of affected offspring, perinatal diagnostics are used. An example of such programs is screening for Tay-Sachs disease in Ashkenazi Jews or for hemoglobinopathy in Italians, US blacks, and Puerto Ricans. There are also selective screening programs for hereditary metabolic defects in some populations of patients at high risk for the accumulation of these defects. An example is selective screening programs for large pediatric clinics aimed at identifying hereditary defects in amino acid, carbohydrate, lipid, purine, pyrimidine and some other types of metabolism. Another example is selective screening programs for a contingent of mentally retarded, ophthalmic, hematological patients [8].

Unlike mass screening programs, selective screening programs do not directly benefit the patient, but contribute to the prevention of hereditary defects through medical genetic counseling of hereditary families. With the help of these programs, the spectrum of hereditary metabolic defects common in the population is also established, and the existence of new metabolic defects is revealed [9].

Screening in cardiology, as a rule, is carried out in order to identify ischemic heart disease (IHD) and risk factors for its development (smoking, lipid spectrum disorders, low physical activity, the presence of arterial hypertension, considered as an independent disease and as a risk factor for IHD, etc.) [4,10].

The screening examination in cardiology allows to classify the examined by the presence and severity of risk factors for IHD and arterial hypertension in order to determine the required volume of measures for the primary prevention of IHD. Classification of different forms of coronary artery disease and assessment of risk factors help to develop secondary prevention measures. The screening examination is carried out by personnel who have undergone special training in measuring blood pressure (watching a movie with recordings of blood pressure measurements and listening to a tape recording, analyzing blood pressure indicators while measuring it with a multifonendoscope), filling out a standard questionnaire (questions on identifying exertional angina, the presence of chronic pulmonary diseases , bad habits - smoking, alcohol consumption), by measuring the thickness of the skin fold, height, weight, etc. They also carry out a thorough standardization of the determination of biochemical parameters (lipid spectrum, blood sugar, etc.). Depending on the purpose of the survey, screening is one-time or step-by-step. Repeated examinations make it possible to assess the stability of the studied parameters, for example, the blood pressure level, and to clarify the diagnosis, as well as to determine the dynamics of risk factors, morbidity and mortality, to develop a system of preventive measures carried out by scientific departments and practical health authorities [3,11].

Screening in pharmacology consists in the experimental identification of the pharmacological activity of chemical synthesis products and natural compounds. There are several screening examination programs, when working with fundamentally new series of chemical compounds and in the absence of information about the pharmacological action of substances, screening is carried out to identify the pharmacological activity of any kind using a wide range of specific tests. In a targeted search for active substances, a screening examination is carried out using a strictly defined set of tests to assess each class of substances, for example, tranquilizers, antidepressants, antipsychotics, anticonvulsants, etc. In some cases, to identify the pharmacological action of any one type, the so-called simplified screening examination using one method is used, an example is the use of a hypo-glycemic test to determine the ability of a substance to reduce the concentration of

sugar in the blood. The tests used must be highly sensitive and allow rapid separation of active compounds from inactive ones.

Adequate tests in some cases allow predicting the pharmacological effect of substances on the human body. So, by the method of a conflict situation, for example, antagonism with corazole, it is possible to predict the anxiolytic effect of the tested drug; in the presence of a curariform action in the experiment, it can be assumed that its muscle-relaxing effect on the human body, etc.

Purposeful screening examination in pharmacology is very productive when searching for new drugs, especially in the series of analogues of known drugs, when creating new drugs by "imitating" natural biologically active compounds or by chem. modification of molecules of active compounds. Modern methods (mathematical modeling, multiple regression analysis of the dependence of the activity of a compound on hydrophobic, electronic and steric factors, etc.) allow a deeper and more subtle analysis of the relationships between the structure and physiological activity of chemical compounds, which contributes to the implementation of targeted screening in pharmacology.

Screening examination for the presence of pathology of the organ of vision shows that an examination of the eyes is the first step for good and complete vision. If your vision is normal, you do not have a history of relatives who had or have eye pathology, then it is recommended to undergo examinations every 3-5 years. With age, the risk of various eye diseases increases, so if you are 40-64 years old, then you need to undergo vision diagnostics every 2-4 years, if you are 65 or more, then visit an ophthalmologist once every 1-2 years.

Of course, the need for diagnostics may arise not only from age, but also from hereditary factors and various injuries. If there are relatives in the family who have been diagnosed with eye pathology, you are at risk and you need to consult an ophthalmologist at least once a year. Some eye diseases are asymptomatic, and manifest themselves already in the late stages, when treatment is ineffective, therefore, a timely examination of the eyes will be able to identify the problem, stop it and return you to full vision. You should immediately get an eye exam if you have these symptoms.:

- redness, itching, pain and burning in the eyes;
- swelling and redness of the eyelids;
- squinting eyes;
- watery eyes or other discharge from the eyes;
- the veil before the eyes, hazy or blurry vision;
- photosensitivity, spots in front of the eyes, difficulty focusing;
- distorted images of objects (for example, straight lines appear wavy);
- double vision or loss of peripheral vision;
- flashes before the eyes;
- flickering spots or sudden loss of vision.

Family-type clinic Optimal invites you and your family to undergo diagnostics of eye diseases and pathologies. In order to identify the problem, we will conduct examinations of all parameters and structures of the eyes, identify the ailment, predict the dynamics of its development, diagnose, prescribe treatment and monitor the slightest changes in vision parameters. The best diagnostic equipment and highly qualified doctors will be able to detect an eye disease or pathology in the early stages, which significantly increases the chances of a full recovery. Remember, regular check-ups are your protection against disease.

Provided services for screening examinations for the presence of pathology of the organ of vision:

Biomicroscopy
Strabismus angle measurement
Examination of the field of view
Computer refractometry and keratometry
Determination of visual acuity
Determination of the nature of vision
Tonometry
Ultrasound diagnostics (eye size, lens condition, corneal thickness, calculation of the required IOL, etc.)

Initiation of neonatal screening:

- The initiation of screening for active ROP should be based on the postconceptual age (PCA) of the child. PCA is the total age of the child in weeks from the beginning of the mother's last menstrual cycle, which determines the degree of his maturity. PCA = gestational age at birth + chronological age (weeks).
- The primary examination by an ophthalmologist of premature babies born at 22-26 weeks of gestation should be carried out at 30-31 weeks of PCA; at 27 - 31 weeks - from 4 weeks of life; for 32 and more - from the 4th week of a child's life (Table 1.).

Table 1: Terms of the primary ophthalmological examination (start of screening) for premature infants at risk

Gestational age	Timing of primary screening chronological age (PCA)
22-26 weeks	30 - 31 weeks PCA
27-31 weeks	4 weeks of life (30 - 31 weeks PCA)
> 32 weeks	3 weeks of age (35 weeks PCA)

The exception is children born at a gestational age of more than 28 weeks and having a somatic burden in the form of pathology of the neonatal period: severe asphyxia (low Apgar score), severe IVH, hemodynamically significant patent ductus arteriosus, respiratory disorders syndrome, bronchopulmonary dysplasia, infectious diseases etc. To exclude rare cases of early development of retinopathy, this category of premature babies requires a primary

ophthalmological examination a week earlier.

Screening methods of examination in the implementation of the program for the early detection of diseases of the organ of vision (glaucoma, age-related macular degeneration, dry eye syndrome).

Active detection of a disease or a pre-morbid condition in persons who are considered or consider themselves healthy, that is, screening involves the use of special diagnostic tests and techniques that can quickly diagnose signs of a disease or risk factors for its occurrence. In the world, there are 285 million visually impaired and 39 million blind, with people 50 years and older accounting for 56% and 82%, respectively, which is associated with the emergence of such ophthalmic diseases as age-related macular degeneration (AMD), and glaucoma [4,11].

In Russia, the incidence of AMD is 15 cases per 1000 population. The general prevalence of the population is directly dependent on age and is 10% at 40 years old, 15% at 65-74 years old, 25% at 75-84 years old, 30% at 85 years old and older. The incidence of glaucoma is 1 per 1000 population per year. The prevalence of the population increases with age: 0,1% of glaucoma patients were diagnosed at the age of 40-49 years, 2,8% - at the age of 60-69 years, 14,3% - at the age of over 80 years. More than 15% of the total number of blind people have lost their sight from glaucoma [5,14].

In addition, over 67% of patients over 50 years of age suffer from dry eye syndrome (DES), which is a complex disease that is one of the main problems of modern ophthalmic pathology [5.11]. There are a number of requirements for the diagnostic techniques used in screening: the test must be simple, acceptable, accurate, inexpensive to use, and give consistent results when repeated. But the greatest significance is played by sensitivity - the proportion of positive test results in really sick people, and the specificity of the test - the proportion of negative results in the absence of the desired disease [6,12].

The Amsler test is traditionally used to diagnose macular dysfunction, but the 3D computerized Amsler threshold test is more sensitive and informative. The Farnsworth-Munsell test using 100 test objects is the most optimal for studying the ability to distinguish colors, however, due to its duration under conditions of mass screening, it is more expedient to use the shortened FM D15 test [9-10]. Violation of tear production under screening conditions can be determined using the Schirmer test [7,8].

To assess the role of modern screening diagnostic methods in the implementation of the program for the early detection of diseases of the organ of vision.

DISCUSSIONS

The studies were carried out with the analysis of data from patients who underwent a screening examination to identify major ophthalmic diseases, age-related macular degeneration (AMD), glaucoma and dry eye syndrome (DES). The study involved 116 people from 40 to 85 years old, the average age was 62,5 years, of which 62 women, 44 men. Methods used in the work - survey, questioning. The screening participant's questionnaire in the project "To foresee is to see" contained the following questions: age, presence of a burdened anamnesis, gender, satisfaction with optical correction, distortion of letters when reading, presence of a spot in front of the eye, myopia (myopia), use of drugs (GCS, cytostatics), the use of drugs for the treatment of glaucoma, the duration of the visit to the ophthalmologist.

Special examination methods: Amsler test, 3D-Computer threshold Amsler test (3D-CTAG), Munsell color test (Farnsworth-Munsell 100 Hue Test), non-contact tonometry, ophthalmoscopy, Schirmer test. 3D-CTAG was performed using an iPad 3 touchscreen display (9,8-inch diagonal), and defects were detected in the central region of the field of view (21×33°) at five individually selected contrast levels.

3D-CTAG criteria for assessing the state of the central parts of the retina:

- number of detected defects;

- the absolute value of the volume of the loss of the field of view (degree 2%);

- the ratio of the volume of the loss of the field of view to the hill of vision, % of 69300 (degree 2%);

zero contrast level (%).

The Munsell test was used to determine color vision disorders. Munsell Test Criteria (Farnsworth-Munsell 100 Hue Test): CG color test (unit: Total Error Score, TES), color recognition level, color vision deficiency, type of color deficiency TCD. Non-contact tonometry was performed using a Reichert 7 pneumotonometer, direct ophthalmoscopy - using a Heine beta 200S ophthalmoscope. For the Schirmer test, strips of filter paper with an average size of 5x50 mm were used.

According to the survey, 74% (86 people) use glasses and only 16.3% (14 out of 86 people) are satisfied with their optical correction. Dissatisfaction with optical correction may be the first sign of asymmetry of clinical manifestations between paired eyes in glaucoma or a consequence of greater distortion of the text in the eye with significant changes in the macular region of the retina (AMD). At the same time, 22% (26 people) note the distortion of letters when reading; 12% (14 people) - the appearance of a spot in front of the eye.

Among the respondents were persons with already established pathology of the organ of vision: 26,8% (31 people) suffer from myopia, 1 person age-related macular degeneration, 4 people - glaucoma, 2 of them use one drug from the group of ß-blockers; 1 - α-adrenergic agonist; 1 - uses 2 drugs (ß-blocker and carbonic anhydrase inhibitor). 33 respondents (28%) have never been to an ophthalmologist, of

the remaining 83 (72%) people 35 (42%) were examined more than 1 year ago (from 1 to 20 years).

According to the results of diagnostic tests, no pathology was found in 26.7% (31 people) of the subjects. At the same time, 7 of them had complaints about distortion of the lines during reading, which can be explained by insufficient optical correction for near. The Farnsworth-Munsell Dichotomous D15 color test was performed on 116 subjects (232 eyes), of whom 28 (24%) performed the test correctly. In 81 (70%), violations of color perception were determined, mainly in blue and green shades. Farnsworht-Munsell 100 Hue Test was performed by 30 (26%) people (60 eyes).

In 3 people (6 eyes), including 2 women and 1 man, an average level of color recognition and a mild color perception deficit were revealed, the total number of errors (Total Error Score, TES) was no more than 100, which is a variant of the norm for 68% of the population. 7 people (14 eyes), 6 women and 1 man, have a low level of color recognition and a moderate color perception deficit, TES = 101 - 200, which corresponds to weak color perception, but is not yet a color anomaly.

When performing the test, 10 people (19 eyes), 8 women and 2 men, revealed a low level of color recognition and a severe deficit in color perception, TES = 201 or more, which may be associated with organic pathology of the retina and optic nerve. In addition, the smallest number of errors and, therefore, a higher level of color perception were noted in persons under 40 years of age. During the Amsler test, changes were identified in 16 (14%) subjects; 100 (92.5%) had no pathology. The 3D-CTAG
method was performed on 50 people in 100 eyes.

First of all, 3D-CTAG was performed on persons who showed defects during the paper version of the Amsler test. In 11 people (22%), no functional changes in the macula were registered in 15 eyes. Visual field defects were detected in 13 people (26%). Of these, 7 people (14%) have central scotomas in 7 eyes, 8 people (16%) have narrowing of the visual field from the periphery in 18 eyes, and 2 people with a narrowing of the visual field (in 2 eyes) already had diagnosed with glaucoma. The appearance of central cattle is a sign of maculopathy or optic neuropathy, which can be confirmed by ophthalmoscopy. In addition, 27 people (54%) had no defects in the central visual field, but an increase in the value of the zero contrast level was noted. In 14 people (28%), the zero level of contrast was increased slightly - from 4 to 9%, which may be a consequence of a decrease in visual acuity as a result of a violation of the transparency of optical media. In the second half of the surveyed, the increase in the zero level was 10% or more, which indicates dysfunction of the macular region of the retina, which means that these people are at risk of AMD and require further examination [13]. According to the results of ophthalmoscopy, 12 people (24%) showed smoothness of the macular reflex and small hard drusen in the macular area, that is, the initial signs of age-related macular degeneration.

These structural changes corresponded to functional disorders in the form of an increase in the value of the zero contrast level on the 3D-CTAG. Non-contact tonometry was performed on 116 people (100%). Elevated intraocular pressure (above 21 mm Hg) was detected in 14,7% of cases (17 people), of which only 4 subjects were aware of the presence of glaucoma and used 1 of the drugs for the treatment of glaucoma. These patients showed an increase in IOP in one eye up to 27 mm Hg. Art., that is, in this case, the target pressure is not achieved and the appointment of a second drug or a transition to a fixed combination is required. In 2 patients with glaucoma, the optic disc is grayish in both eyes, clear boundaries, marginal excavation. This corresponded to concentric narrowing of the visual field during 3D-CTAG, low color recognition, and severe color deficit characteristic of stage III glaucoma.

In 1 patient (in 2 eyes) the optic disc is pale, the boundaries are clear, the excavation is extended, during 3D-CTAG no visual field defects were detected, but there is an increase in the zero contrast level to 7-25% (mean 11,67%), which occurs when I-II stages of glaucoma. In addition, 3D-CTAG allows detecting scotomas corresponding to blind spot enlargement, arcuate defects and nasal step, that is, changes in the visual field characteristic of the initial and advanced stages of glaucoma, however, such
changes were not revealed during screening.

According to the results of the Schirmer test, carried out in 116 subjects (100%), the level of wetting of the test strip with tear fluid is not more than 5 mm from the fold (in 38 people – 32,8%). At the same time, 35 people (30%) noted the presence of DES symptoms (dryness, redness of the eyes, a feeling of "sand in the eyes", increased symptoms when working at a computer, air conditioning, worse in the morning, evening time of the day, winter season). Subsequent outpatient examination using optical coherence tomography as an additional method confirmed the presence of wet AMD in 7 patients with central visual field defects, as well as dry AMD in 5 patients with an increased zero contrast level according to 3D-CTAG data.
The obtained data correlate with the information available in the literature on the sensitivity and specificity of the Amsler test and 3D-CTAG. Thus, the Amsler paper test reveals visual field defects in 79% of patients with wet AMD and in 26% with dry AMD, while 3D-CTAG in 100% and 41% of cases, respectively [8]. As a result of our own research on wet AMD, 3D-CTAG sensitivity is 100%, specificity is 88%; for dry AMD - 39% and 55%, respectively. These indicators are explained by the fact that central scotomas can be detected not only with AMD, but also with other diseases, and, therefore, a positive 3D-CTAG result indicates the need for ophthalmoscopy with a wide pupil on a mandatory basis.
Patients with increased intraocular pressure subsequently underwent a detailed examination, including Maklakov tonometry, computer static perimetry, direct and indirect ophthalmoscopy in order to detect glaucoma. These patients were further examined on an outpatient basis, and the use of

combination therapy with the use of prostaglandin analogs was recommended.

CONCLUSION

Thus, we can conclude that the screening survey of the population within the framework of the project "To Anticipate is to See" showed that Munsell's test, 3D-computerized threshold test Amsler and Schirmer's test are quite simple, non-invasive techniques with sufficient sensitivity and specificity and can be used in screening surveys of the population. The screening identified individuals with signs of age-related macular degeneration, glaucoma and “dry eye” syndrome, as well as healthy individuals at risk of developing these diseases. The received recommendations for further examination and treatment, as well as lifestyle correction, will help to avoid the progression of diseases and the development of complications.

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