Healthy,
we are all equal!

PRIMARY CARE FOR CITIZENS AGED 40-65

Under the direction of Dr. Klodian Rjepaj, Deputy/Minister of Health, is made possible the process of perception, consultation, expertise, elaboration and building of every block for implementation of the National Program "Primary care for citizens aged 40-65".
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Healthy, we are all equal!

Dear physicians, nurses and healthcare workers. I am particularly satisfied as I see with pleasure that, upon the publication of this important document, such as "The Guideline on Primary Care: for the population aged 40-65, resident in Albania", we have already undertaken a substantial and concrete step towards transforming the healthcare system under universal coverage, thus accomplishing one of our major program and governmental commitments.

In this path which we decided to follow since 23 June 2013, we believe that it is necessary to create a new approach.

Traditionally, the healthcare system has been focused on the illness. On this basis was perceived and established the whole healthcare system.

Meanwhile, in the event of an illness, unfortunately, lack or even restrictions of access to public healthcare, makes us fall in a position of financial difficulties which in turn generate inequality. However, we have chosen a system that accepts the inequality, and even coexists with it. But when inequality produces poverty, then the society faces a problem.

Certainly, history teaches us that human societies have managed to resolve by themselves even the injustices. And in cases they fail to do so, they appeal then, to politics. This is precisely because, eventually, politics is the art of opportunity, helping people to resolve problems they do not manage by themselves.

Therefore, the Coalition Government "the Alliance for the European Albania" has chosen to provide Albanians with their deserved protection through a healthcare system with universal coverage considering healthcare as a public asset and a fundamental factor of development.

Because, we believe that through this system we will manage to overcome the barriers already present for many Albanians and we will manage to offer more security through the healthcare service they deserve.

Let's try to focus on health. Accordingly, we should take care of the health and invest, both for its prevention, and early diagnose. Such a new approach is an added value to our healthcare system, aiming at protection of the population from threats to health; it will help people lead a longer qualitative life, and it will also help to protect the most vulnerable strata of the society. This approach offers us the opportunity to focus on healthcare and its preservation and not only on the illness and its proper medical

treatment.

This is the reason why one of the main pillars of our 4-year program is the program of the primary care for Albanian residents aged 40-65.

The primary care already adopted by the Council of Ministers on 3 April 2014 is a national program, free to its beneficiaries, aimed at screening of the population for risk factors as well as the most prevalent morbidity for treatment of health problems, prevention of diseases and complications, detection of disorders, treatment in early stages and improvement of health culture, out of which will benefit all citizens aged 40-65 residing permanently in the Republic of Albania.

We invite all healthy Albanians to develop their individual responsibilities towards the society which is being prepared to take over healthcare costs of everyone. We invite them to be present at the healthcare centers of their residence once a month, free of charge, in order to carry out their primary screening.

It is an obligation of the whole primary healthcare system, not only to invite Albanians, but also to offer a new qualitative service and more attention with regard to protection of health. Through this initiative, the family physician assumes a greater role and we believe that these healthcare professionals will be its main advocates. In addition, this initiative provides more opportunities to nurses to exercise their profession with dignity, thus undertaking the role they really deserve. Furthermore, greater support will be dedicated, through this initiative, to healthcare centers and the relevant healthcare workers. I take this opportunity to thank wholeheartedly the working group for its commitment, professionalism as well as its hard work in drafting and designing this package of primary care, directed competently by the Deputy/Minister Klodian Rjepaj, and also the Swiss Cooperation Office for its valuable support and commitment in helping us with training of physicians and nurses.

Wishing you good luck in correct implementation of protocols and rules of this manual,

Thank you!
Ilir BEQAJ
MINISTER OF HEALTH

INTRODUCTION

PRIMARY CARE FOR CITIZENS AGED 40-65

ARGUMENTATION

Non-communicable chronic diseases, especially cardio-vascular and tumour ones are major causes of mortality in Albania. They are diseases mainly caused due to unhealthy lifestyle, therefore it should be insisted to prevent them in time by influencing in medical education of the population for a healthy lifestyle.

In the vast majority, the burden of morbidity in Albania is determined from 3 major risk factors: unhealthy nourishment, high blood pressure and tobacco products consumption.

The main five causes of the years already led with inability (YLD) are the back pain, major depression disorders, fall-related injuries, neck pain and anxiety disorders.

The years of life lost from early mortality (YLL) in Albanian population are attributed to heart ischemic diseases (18.6%), cerebral vascular diseases (15.2%), lower respiratory infections (5.6%), lung cancer (4.6%) and road accidents (3.5%).

Individuals of the age group 40-65 present higher risk for a number of non favourable medical situations, and exactly these individuals would benefit at maximum out of the early detection of their diseases.

The history of healthcare systems in developed countries and in the countries under development has revealed that these interventions pose a positive impact on the individual's health and communities' health, a positive impact on the economy of a certain country, and constitute cost-effective interventions. Global scientific evidences have shown that the improvement of healthcare status in a population, has contributed

substantially on human and economic development of this population.

Healthcare control to a population has its own advantages for the improvement of public health. In order that this primary care brings benefits, the aforementioned diseases must meet some criteria. So, the disease should have a high prevalence or incidence among the population; this disease may damage the individuals' health if it is not identified and treated in due time; the disease may be treated or prevented; the test should be less invasive, easily conducted and at low cost; the testing methods should be scientifically studied demonstrating that they are accurate, reliable and provide the opportunity that their results be confirmed through other methods. Also, before the application of the respective test, it is necessary to receive the patients' consent.

Various countries have created the so called "screening frames", based on the principles of screening designed by the World Health Organization, aiming at directing the decision makers where the latter consider issues related to the population screening programs.

APPROACH

This approach is and should be based on FD (Family Physician)/HC (Healthcare Center)/Primary Care, via "know how", new healthcare and promoting practices, bringing a new step in providing services, increasing the quality and intensive interdisciplinary communication. This new approach is a new added value in our healthcare system, aiming at protecting the population from threats on health; it will help people lead a longer qualitative life, and also protect the society's vulnerable strata. This approach gives us the opportunity to focus on health and its maintenance, and not just on the disease and its medical treatment.

- **A new approach which makes it possible that:**
  All individuals make healthy choices;
  The professionals offer opportunities for healthy choices;

Healthcare professionals in Primary Care should function as a team of Family Medicine.

PRINCIPLES

- Every citizen with permanent residence in the Republic of Albania, who belongs to the age group of 40-65, is entitled to have access to primary care, without any discrimination.

- The primary care for citizens aged 40-65 is free for all citizens benefiting from such a program.

- Primary care for citizens aged 40-65 is offered and accomplished by the healthcare workers of Primary Care, contracted from Compulsory Insurance Fund of Health Care. The rights and duties related to the implementation of the primary care program for citizens aged 40-65 are part of contractual relations between the providers of services as well as the Compulsory Insurance Fund of Health Care.

- Primary care is implemented in 415 Healthcare Centres infrastructure, extended all over the country.

- Primary care program for citizens aged 40-65 is logistically supported by selected operators according to the provisions of law no.125/2013 "On concessions and public-private partnership".

- Every citizen has the right to give his own consent for health care that will be offered to him.

- Every citizen has the right to being treated with dignity.

- Every citizen, belonging to age group of 40-65, following completion of primary care, is entitled to consultation, treatment and reference according to the regulatory frame in force.

- To make the language sensitive in terms of gender, the terms 'citizens/patients/clients', used in this guideline, involve individuals of both genders.

PREPARATORY PROVISIONS

PRELIMINARILY:

- Each Healthcare Center :

- Has evidenced the citizens aged 40-65, living in the territory covered by the Healthcare Center.

- Transfers the nominal list of citizens aged 40-65 living in the territory covered by the Healthcare Center, to the selected operator according to provisions of the law no. 125/2013 "On concessions and public private partnership".

- Has evidenced the premises (room) that will serve for conducting the examinations according to the Primary Care Program for citizens aged 40-65.

- Has identified and determined the premises that will serve for citizens' reception.

- Has equipped the premises (room) that will serve for conducting the examinations through the standard set of equipments, to be provided by the selected operator.

- Has ensured the set of consumption materials for conducting the primary care.

- Has ensured the set of questionnaires, forms, guidelines for conducting the primary care.

- Has designed the schedule of delivering laboratory samples to the selected operator for the transportation of samples to the determined laboratory.

- Has the computer system for data registration/transfer in place.

- Has designed and displayed the weekly schedule of the tasks division among members of the healthcare personnel for the accomplishment of the primary care, in addition to other tasks of the

Healthcare Center.

- Selected operator/s

- Has updated the 40-65 years old citizens' list, according to the jurisdiction of every Healthcare Center.

- Has the "call center" available.

- Has determined the system of invitations delivery (a sheet of information and the IFOB examination material container are attached to every invitation).

- Has provided, delivered and installed the necessary equipment in every Healthcare Center.

- Has delivered the set of consumption materials for conducting the primary care for the next 3 monthly period.

- Has delivered the set of questionnaires, forms and guides for conducting the primary care for the next 3 monthly period.

- Has installed the computer system of data registration/transfer.

- Has completed instruction of healthcare centres' personnel on using the medical equipment.

- Has completed instruction of healthcare centres' personnel on using the computer system.

- Has determined and equipped the laboratories for samples processing.

- Has drafted standard procedures of samples processing in the laboratory, of outcomes documentation as well as the internal screening of quality.

- Has determined the samples transportation system (time, frequency, tools, and documentation).

- Has compiled a plan on maintenance and also a set of necessary equipment related to Primary Care.

- Has determined the system of sending analysis results from laboratory to the Healthcare Centre.
- Has determined the system of delivering the results of the Primary Care from the Healthcare Centre to the citizen.

- Has drafted a contingence plan for unexpected situations.

- Health Care Compulsory Insurances Fund.

- Has designed, discussed, adopted and concluded contracts between the Fund and Healthcare Centres.

- Has provided proper equipments for adjusting Healthcare Centres premises for implementation of the Primary Care.

- Has drafted the plan for fulfilling contractual obligations.

- Health Regional Directorate/Public Health Directorate.

- Has determined the monitoring and assessment plan of the Primary Care.

STEPS OF PRIMARY CARE PROCESS

- Calling individuals for the primary care by the selected operator.

- Calls via the postal service.

- Sending envelops addressing to every citizen, with permanent residence, aged 40-65:

- invitation the healthcare system sends to the individual;

- standard information related to primary care;

- container for material of IFOB examination;

- free telephone number for information/uncertainty (call centre)

- Participation in primary care will be offered in one of the three dates that will be proposed to the individual, in his/her own birthday month.

- Back-up calls over the phone.

- Reception of citizens at the Healthcare Centre.

- The assigned nurse hosts the citizen in the reception area.

- The citizen introduces the invitation.

- The nurse is assured that citizen is well-informed, and meets the criteria to benefit from the Primary Care program and has also followed the instructions.

- If so, the nurse registers the citizen's general data. If he/she does not meet the criteria, the citizen is informed about the reasons why he/she does not meet the criteria. If it is noticed that the citizen has not followed the instructions, he/she will be advised to follow the

instructions and is assigned an alternative date to be present at the Healthcare Centre.

- The citizen is accompanied by the nurse to the appropriate area to carry out the primary care examinations. In order to secure confidentiality and subject to the implementation of medical ethics norms, it is recommended that in the assigned area for primary care examinations, to be only one citizen.

- Communication ethics' norms are rigorously followed.

- Assessment module of lifestyle factors.

- The assigned nurse for assessing lifestyle factors explains to the citizen what will be assessed and how it will be assessed. It is reconfirmed and respected the confidentiality principle.

- It is administered the assessment questionnaire (instrument) of the performing or performed work;

- It is administered the nourishment assessment questionnaire (instrument);

- It is administered the alcohol consumption assessment questionnaire (instrument);

- It is administered the tobacco consumption assessment questionnaire (instrument);

- The nurse advises based on algorithms for each lifestyle factor.

- Communication ethics norms are rigorously followed.

- Measurement module, physiological parameters assessment.

- The assigned nurse for the measurement and assessment of physiological parameters explains to the citizen what will be measured, how and why it will be measured. It is reconfirmed and

respected the confidentiality principle.

- It is measured body weight; the result is noted in the form.

- It is measured the arterial blood pressure (according to the procedure: upon calmness conditions, in the appropriate position, several times); it is explained the procedure effects; the result is noted in the form.

- The citizen lies in the visiting bed; the electrodes are fixed; the possible effects are explained; heart' activity is measured.

- Communication ethics norms are rigorously followed.

- Module of measurement and assessment of bio-chemical parameters.

- The assigned nurse for samples taking in order to measure and assess the bio-chemical parameters explains to the citizen the procedure of samples taking, the aim of samples taking, the possible effects during and after the samples taking. It is reconfirmed and respected the confidentiality principle.

- The citizen gives the container with the sample of faeces for occult blood;

- Blood samples are taken for:

- Blood formula;

- Hb, HCT, MCV, MCH, MCHC;

- Total cholesterol, HDL cholesterol, LDL cholesterol, triglyceride;

- Glycaemia;

- Total and direct bilirubin, transaminases (SGPT, SGOT).

- The citizen is instructed and given the container for taking urine

samples for:

- Albuminuria, the presence of nucleus, cylinders, crystals in urine;

- The nurse records and marks the test-tubes and containers.

- Communication ethics norms are rigorously followed.

- Stress and depression level assessment module.

- The citizen is accompanied to the family physician, where he/she is registered, or in case he/she is not registered to a family physician who is available.

- The physician explains to the citizen the procedure and reasons of assessing stress and depression level.

- It is reconfirmed and respected the confidentiality principle.

- It is administered the stress and depression level assessment questionnaire (instrument).

- It is administered the depression level assessment questionnaire (instrument).

- The physician advices based on algorithms.

- Communication ethics norms are rigorously followed.

Citizens' accompany

- The citizen is informed from the family physician on the reply manner:

- All the tests and analysis results will be gathered.

- The physicians will analyse them in the healthcare centre.

- The written reply will be prepared.

- The citizen will be informed by post.

- The time of waiting for the reply (not more than 1 week).

- In case of finding problems of medical emergency or other acute problems, the citizen is treated according to standard procedures and functioning rules of the Healthcare Centre.

- Note: In cases of anti indications or refusal of administering any test or procedure from the citizen, the incident is documented and it goes further. It is recommended requiring the citizen's signature in cases of any procedure or test refusal.

- Preparation of the reply.

- The general data and the forms of each module for every citizen are gathered in a special individual folder for each citizen.

- The samples for bio-chemical parameters measurement, after preparation, marking and coding, are kept secured according to predetermined conditions until they are handed to the selected operator, who is obliged to go periodically at every healthcare centre to take the samples.

- Bio-chemical analysis answers, after being sent not later than 3 days from the selected operator (Laboratory) to the Healthcare Centre, are attached to the individual folder of each citizen.

- The physician analyses the data of each module and assesses the risk based on algorithms.

- The physician formulates the reply.

- The selected operator sends the reply to the citizen's address by post.

- Follow-up

- Sending the reply via the post to the individual advising him/her for further follow-up if it will be needed;

- Specification of the legal obligation for specialists to reply to the Family Physician (FD) for the referred patient;

- Consultation and information regarding registration with a family physician, if he/she is not registered.

The message:

Public health and medicine have had amazing achievement: clean air, clean water, safe and healthy nourishment, mass immunization has made it possible that many killing diseases to be mentioned only in the history books, but there are also great opportunities to go further and faster in facing the current causes of mortalities and premature morbidity.

Life is becoming more complicated as well as the risk factor, but the professionals' duty in protecting the public health, is to give simple and reachable solutions by all. In this context, upon the whole society commitment, health system responsibility, healthcare professionals, civil accountability, community and individuals' accountability, health is "free of charge", because the costs of the society to maintain a healthy living are much lower than the benefit in terms of general, individual welfare, and economic development of the country. While the disease has its costs to everyone not just in financial respect, but it conditions the individual affected, his/her relatives and the whole society.

Following these developments and the experience gained out of this periodical screening program in population, it will be necessary to establish a permanent national committee for preventing medical control (screening). This committee should not be influenced by close interests, but should offer the appropriate expertise, based on scientific evidence, proposing to the Ministry of Health the periodical control program of the

population. The National Committee of Medical Control of population will be a counselling body to the public, to professionals in the healthcare field, to policy and decision makers in relation to the new programs of the medical screening, as well as to monitor the performance of introduced programs among population.

The establishment of this committee brings inevitably the treatment of issues related to prevention in population at a higher level of healthcare policy agenda, it brings professionalism and no doubt the continuance of implementing medical screening programs among population, not just focusing on the program for citizens aged 40-65, but implementing even other elements already related to prenatal control, preventive paediatric control, premarital control, or other kinds of medical control aimed at preventing healthcare disturbances. Despite the fact how able will the public system be to cover all kinds of above mentioned controls, this process has already started. It has started to operate systematically and professionally also to the protection of health thus preventing the diseases and not just treating them.

                                              Klodian RJEPAJ
                                        Deputy/Minister of Health

ROLE AND DUTIES OF THE WELCOMING NURSE IN THE HEALTH CENTER REGARDING BASIC MEDICAL CONTROL PACKAGE FOR AGE GROUP 40-65

The welcoming nurse in the Health Center is the first medical contact of the patients who come to receive the service provided by the compulsory control package for the age group 40-65. They do not make any distinction when providing these services to people who benefit from this package. These people are informed according to all the regulations and they receive them at the moment when they contact the Health Centers (HC). Welcoming nurses provide to them open and unlimited access regarding all health problems. She is a graduated nurse, member of Nursing Order of the Republic of Albania; she has a license from the NCA (Nursing Order of Albania), she meets all the employment criteria approved by the Ministry of Health according to the "Basic Document on Nursing Care", Protocol No. 1716, dated 11.05.2004, according to the Order of the Minister of Health, Protocol No. 220, dated 9.06.2013. The nurse works together with the Family Doctor and signs a legal contract for this position with the Head of Health Center.

As a nurse of family medicine she is in charge of following all the assigned rules in the Ethics and Deontology Nursing Code, as well as following the general duties described in the Job Contract, as follows:

GENERAL DUTIES

- Shall be responsible for providing a continuous and comprehensive care for every person who seeks medical help, regardless of disease, age and gender.

- Takes care for the person in the family, community and his/her culture context, by always respecting patients' independence.

- Holds all the professional responsibilities towards the community as well.

- Conducts her job by promoting health care issues, preventing diseases and by providing treatment/care.

- Shall be responsible to develop and maintain professional abilities, personal balances and individual values.

WELCOMING NURSE SPECIFIC DUTIES REGARDING THE CONTROL PACKAGE

Despite the good professional abilities, the general and specific duties of the family nurse, she has to understand and perform some extra duties as well. At the working place, it is essential the civilized welcoming and the relationship with the patients who seek basic medical control and the doctors and nurses who will provide the service to them. At the same time they facilitate the communication of the client with the General Family Doctor (GFD) within the health institution.
Welcoming nurse specific duties are:

1. The nurse starts the work at the determined time, initially by taking care of the uniform and her working environment, which should be strictly in line with the functioning rules of HC (Health Center). She sets the discipline and makes sure that everything is perfectly clean, according to the hygiene rules in the HC.

2. She controls all the equipments and materials that she will need to perform all the day's work without any interference, making sure that nothing is missing from the list on the working tools.

3. Firstly, by reflecting sympathy and devotion she accommodates the clients, who have come according to the previous notification, in the welcoming premise of the health center, reserved for the clients who will perform the compulsory Periodical Control.

4. Carefully verifies all the patient's documentation, the notification that the patient has received, identification document, Health Booklet (in case he/she is insured, otherwise he/she is not in charge to bring the

Health Booklet to benefit from the control package).

5. She asks the client if he/she came prepared to perform all the controlling procedures, according to the submitted advices in the notification that he/she has received; she poses the question whether he/she is on an empty stomach or he/she has consumed food earlier.

6. She makes the required notes in electronic and physical register, related to the client's presence.

7. She informs the clients on the minimal waiting time, and on all the actions that will be taken according to the procedures that are planned during the control session.

8. She asks the client's approval on the procedures.

9. She continuously supervises and manages the patients welcoming area, by avoiding confusion and disorder of the queue (the hall, waiting room, etc.).

10. She has the right information on the working schedules (daily and weekly chart) of doctors and nurses of the institution in order to share the accurate information with the patients. She also has the telephone numbers of the staff of this institution.

11. She should be careful when she talks with the clients and should refuse with delicates the requests that seem to be unreasonable.

12. She should encourage the patients and provide the appropriate advices according to the diseases and the problems that may come up.

13. The welcoming nurse should not leave the working place; she can do this only when she is substituted in ware of the Person in Charge of the HC.

14. She maintains the working environment, equipments and materials for which she is in charge of, the register and the documents in use.

15. It is her duty to respect the working schedule, the interior rules of HC and the weekly working chart.

16. She informs the Director or the Head Nurse of the Health Center for specific problems.

17. She periodically prepares carefully the nominal list of people who will be contacted in the future, according to their birthdays and prepares the envelope that will be sent to client's address.

COMMUNICATION

Nursing communication process:

In all the phases of the basic medical control process, nurse-client communication is given a paramount importance, starting from the welcoming moment to the accomplishment of all the elements determined in the Control Package. The nurse should be very careful by strictly following all the responsibilities of nursing ethics determined in the Nursing Ethics Code. A delicate and very important element to be followed is the one regarding the confidentiality and professional privacy, as a legal and moral obligation. Communication is of principal importance in assuring efficacy and productivity of the promotion programs. It is of vital importance to recognize the factors which determine an effective communication.

The two main factors, that influence the communication efficiency, are the followings:

-Inconsistency. Inconsistency must not be seen just as a refusal or resistance of individuals to change health behaviours. It must be seen even as a barrier or limitation of the heath personnel to understand/ accept what the needs of the community are.

-Credibility of the communicator. Often, it is seen that the individuals' engagement in changing health behaviours is a result of the trust they have towards the communicator (health worker). Seen from this perspective, credibility is a key component regarding the quality of the communication.

Healthy behaviours' adoption. We have listed here several factors that provide efficacy in changing health behaviours of individuals in a certain community:

- Adaptation's scale. It is referred to the individuals' ability to adapt himself/herself with the new practices recommended by the communicator (health worker);

-Social system nature. It is referred to the nature of society organisation (formal and informal institutions; and the relationships among the individuals and the institutions);

-Change characteristics. They refer to qualities/virtues that the change of behaviour brings; so, depending on the behaviour that needs to be changes, the change of the quality predicts modifications, that may be too small for the individuals.

Community's development. The most appropriate environment for organizing some of the activities regarding education and health promotion is the community. A special attention for the community development is given to the "resistant groups", who are often represented by families that suffer a high level of poverty, low level of education and by other disadvantages. By summing up the programs' results that focus on community, we reach to the conclusion that:

• Health promotion programs in a community improve connections/interrelations between the health workers and the all the members of the community;

• Educative/promotional activities raise the awareness of the whole community on the main causes of the diseases, and on the ways of preventing and treating them efficiently;

• Promotional and community programs address the health inequality indicators and offer health services for the poor groups of the society;

• All the programs and activities that focus on the community have an

impact on stimulation/improvement of health, education and social services at local level, by assuring a sustainability on the improvement of health indicators.

NURSING DOCUMENTATION IN FUNCTION OF PERIODICAL CONTROL PACKAGE

Organization of the medical documentation

Medical document serves to save the medical record of diseases and health care of an individual or of a patient during all his/her life, from birth to death. It includes numerous notes written time after time by the ones who provide health services, which are related to observations, diagnosis, medicaments administration and different therapies, recipes and recommendations descriptions, examinations results, radio therapies, medical reports etc. Organization and maintenance of individual medical booklet is a professional request for the workers who provide health services. In general, the understanding of criteria and the use of individual medical booklet is a compulsory criterion for the qualification and the graduation of medical personnel. Medical documentation of an individual is filled in and kept only by the professional providing medical service (doctors and nurses) and the client is not allowed to keep or use it personally. The information is very confidential and is treated by ethics-legal issues. For this reason, it is not allowed the interference by unauthorized individuals, and it is damaged or if sheets of notes are missing, the health personnel is the one in charge according to the legislation.

Welcoming nurse responsibilities of maintaining and keeping of the documentation.

The welcoming nurse in the Health Center uses all the stipulated documentation for the Control Package. Together with the Family Doctor she administers and is responsible for the accomplishment, maintenance and keeping of: control's register, electronic register, the handing over register and inventory lists of materials in use by the Control Cabinet, client's notification documents, forms, questionnaires, etc.
- She plans, assesses and follows the individual plan of client's notification and welcomes; all these elements are designed to function as in a team.

• This plan is documented in the patient's individual booklet;

• She documents all the performed interventions according to the individual plan and the 40-65 years old Primary Care Form.

• She is responsible for the professional maintenance of the documentation related to client's identification, results of the tests, organizing the questionnaires, control's forms and other documents needed at the working place.

THE ROLE AND THE RESPOSIBILITIES OF THE NURSES WHO ADMINISTER THE QUESTIONNAIRE AS AN ELEMENT OF THE CONTROL PACKAGE

Primary Care Form is a legal document, an instrument of a special importance used by primary care nurses. It is compiled to help the accomplishment of a whole medical check-up, sufficient to assess and manage the health risk of the age group 40-65. In combination with the other instruments of the package, it serves to screen unknown or early diagnosed diseases, for the people who are under medical treatment for any chronic disease, as well as for those who have not had health problems previously.

The nurse plays an important role in filling the form. The questionnaire included in the control form will be filled under the responsibly of the nurse, because this will serve for:

•Lifestyle determination.

•Nourishment.

•Physical activity.

•Medical advices' compilation supporting the client's health education.

•Giving advice related to the nourishment and the activity she has to perform.

At the same time the questionnaire will serve even for the family doctor, as one of the instruments in performing the analysis of all gathered data for the risk factors determination, referral for additional tests, more specialised medical visits or the treatment plan of identified illnesses by the GD (General Doctor).

In line with the abovementioned elements, the nurse administering the form, shall take the responsibilities listed in the "Job Description" and should possess the following abilities:

• Shall be a loyal person, respected by the community members, devoted to the job.

• Shall have communicative skills and a professional approach, in line with the nursing ethics.

•Shall have good skills to manage the first contact with the patient.

• Proper understanding of the forms, and of the questionnaire's content included in it.

• Being able to selectively gather/process the data of history, physical examination, health condition investigation.

• Shall know and implement the health promotion, prevention, treatment and care.

• Shall be patient to carefully listen to the claims, and the numerous acute and chronic problems - the ones related to the disease, and even the ones related to patient's socio-economic status.

• A good understanding of orthographic rules, and shall have a clear writing.

• Shall be in charge to maintain the form, because it is a document of a multiple importance.

• Shall have the skills to sum up the health needs of the individuals, and community where they live, in balance with the available sources, taking into consideration the cultural/existential dimensions.

• Shall be available to urgently intervene when necessary.

DEPRESSION AND STRESS

Depression

Questionnaire PHQ - 9

1. THE SCOPE

Depression is a mental illness associated with disability and reduction in life quality of people already suffering from it. In addition, depression carries heavy social and economic burden due to direct and indirect disability it causes. It is now widely known that depression as co-morbidity worsens indexes of mortality and morbidity of many somatic illnesses.

The World Health Organization (WHO) carried out a survey in 1999 to compare all mental illnesses, finding that depression occupied the fourth place as a cause of mental disability and it was predicted that in 2020 depression will rank the second following cardiac illnesses, as the cause of inability and disability. In 2014 depression was recognized by the American Heart Association (AHA) as an independent risk factor regarding mortality and morbidity from cardiac illnesses.

US Preventive Services Task Force recommended screening for depression to all persons aged over 12. Screening helps to detect depression early enough and timely intervention can significantly help early improvement of the relevant situation.

The goal is to enable implementation of the screening program, to detect and introduce specialized treatment, as well as monitor the progress of patients suffering from depression.

2. DESCRIPTION

The periodic screening national program is intended to control all people aged 40-65; however it should be mentioned and attention should be paid to persons with high risk for depression. This guideline is helpful to family physicians not only as part of periodic control, but also for the assessment of patients posing risk during daily work. As high risk groups are mentioned patients with heart diseases, diabetes, oncologic illnesses, Parkinson, cerebral insult, females in the prenatal period, abusers with alcohol and other substances, the elderly, persons with social problems, persons suffering from chronic pains and those with symptoms, which have found no explanation.

Depression exacerbates symptoms of organic illnesses and vice versa. Physicians are generally inclined to consider a certain medical visit only in terms of assessing organic disturbances by disregarding not only depression but also other mental disorders, which contribute to the mismanagement of the illness, as factors which drive patients towards unhealthy behaviors such as smoking, alcohol use, lack of physical activity, junk food, etc.

Depression can be well identified in the primary care through specific questionnaires, among them, THE PATIENT HEALTH QUESTIONNAIRE (PHQ-9), which is a case-finding instrument based on self-reporting, and is specially designed for screening and assessment in the primary care.

PHQ-9 has proved to be equally effective among diverse races and cultures. The questionnaire PHQ-9 has 9 questions, where each can have, depending on the severity of symptoms (situations), a certain rating from 0 to 3 points in ascending order, namely the value 0 indicates lack of the symptom (situation) and value 3 indicates a more aggravated symptom (situation).

All questions correspond to the DSM IV diagnostic criteria, on which is based depression diagnosis in a clinical assessment.

The questionnaire may total to 0 to 17 points. The result is considered positive if the total value is 10 or more. If the value is over 20, then we have to do with a major depression (on full interpretation of the questionnaire results, see Annex I).

The questionnaire is very sensitive; it can serve for screening as well as follow-up and monitoring of the situation throughout the course of

treatment, given that the total of points should be reduced upon the onset of the treatment effect. The questionnaire is filled out in the designated screening center, which usually is in the healthcare center of the proper area and in specific cases another unit, as defined by the Ministry of Health.

The physician should clearly explain to the patient how to respond depending on the degree of severity of symptoms (situation). Once convinced that the patient is aware on how to fill out the questionnaire, he gives it to him to administer. Preferably, the questionnaire should be completed in the physician's office, particularly for the first time, but in specific instances it may be administered even at home.

PHQ-9 offers the opportunity to provide the quantitative value of depression, similar to arterial blood pressure values. If a patient showing arterial blood pressure values in the above rate limits is recommended for a regular monitoring of the arterial blood pressure, similarly a patient, whose values in the PHQ-9 are below the value of 10 points (provided that he has 0 points in question no. 9), after being further explained on depression symptoms (see below), which if deepened or added, is recommended for access to specialized assistance, is recommended to conduct another assessment within 6 months.

In the event the total value of points is 10 or higher, then the patient should be considered to have depression and should be referred to according to the referring system as defined by the Ministry of Health in the Mental Health Community Center of the proper area or to the specialist psychiatrist, to identify the clinical diagnosis of depression.

Depression is a certain disorder which can be successfully diagnosed and treated if detected. Attention should be paid to avoid the stigma effect from mental illnesses when the questionnaire is first provided. Preferably, there should be only one person already present and offering the maximum assistance.

The periodic screening program for people aged 40-65 is to a certain degree the first real incorporation of the primary system in the management of the mental illnesses; the final object should be treatment of depression in the primary system (see annex I on the questionnaire).

3. MANAGEMENT

Depression appears anywhere and has serious consequences. Overall, treatment resumes patients to their level of function prior to the onset of the illness, usually within 1 to 2 months.
Recent studies also show that in most cases recidivism can be prevented. Very slight forms of depressive disorders often fade away presenting no necessity for treatment, therefore it is important that the physician be aware when to start/recommend treatment.

3.1 Symptoms of depression – Assessment

• Depressed mood. More than 90% of patients experience a state of irritable mood or prolonged discouragement, or the feeling of further neglect. The whole patient's mental life is usually blurred by depressive mood; it is comprehensive and dominating.

• Anhedonia, inability to feel pleasure from previous pleasurable activities, is almost the universal symptom of depression. Activities that may no longer be pleasurable are: eating, sex, hobbies, sports, social events and family functions.

• Anxiety – Most depressed patients experience anxiety, implying internal disturbance associated with horror, fear or anticipation of danger, along with autonomic system dysfunctions such as the feeling of high heart rate, butterflies in the stomach, fast pulse.

• Vegetative symptoms refer to specific physical problems often associated with depressive mood.
The presence or lack of these symptoms is of primary importance in terms of predicting responds to somatic therapies of depression.

• Sleeping disorders – Most depressed patients experience certain forms of insomnia, such as the difficulty to sleep (early insomnia). Patients with this complaint show squirm in bed, while digesting events that occurred during the day.

Others complain of awakening while sleeping, often from night horrors and have difficulty in getting back to sleep (middle insomnia).

A usual case is early awakening in the morning (terminal insomnia). Patients wake up at 5 or 6 A.M. and cannot sleep anymore.

Although insomnia is more frequent in depression, it happens that for some depressive people, on the contrary, additional sleeping may be a sign of depression.

• Appetite disorder – Many depressed patients suffer loss of appetite (anorexia) with or without loss of weight.

When recording the patient's history, you should continuously document any weight loss as well as the period when it occurred.

Weight loss might be small or very large, even to the extent to threaten the patient's life.

A minority of people, particularly young women and those with bipolar illnesses, might show overeating (hyperphagia) or greedy eating (bulimia). Such cases revealed weight gain.

• Loss of energy (anergy) – The depressed patients show signs of fatigue and loss of energy even when not doing physical exercises and describe this as "decline" or "as if their whole energy has been discharged out of their body".

They may think they lack vitamins or that suffer from cancer or tuberculosis. Some people experience daily changes of mood or the energy level, implying that depression is worse in the morning and improves during the day.

• Reduce of libido, loss of interest and sexual drive, is often found in depressive patients.

Such a lowering of libido may increase marital tensions and lower self-esteem already reduced of the patient. The most common symptom present to men is impotence.

It is necessary to examine the sexual dysfunction in those patients suspected of depression, because most of them find it difficult to express themselves on this problem voluntarily.

• Psychomotor retardation (slow-down) – Many depressed patients demonstrate slow-down of thought, speech and action. Rare responses to questions and slow speech with a fixed look as well as slow body movements are part of this syndrome.

• Psychomotor agitation – Some depressed patients, in particular older ones, demonstrate agitation rather than retardation.
This implies an unpleasant inconvenience or tension, which is inability to calm down and stay sitting in one place. Such people seem "nervous". This agitation is actually an attempt to alleviate tension, such as hands shaking, nails biting, hair pulling, long wanderings, etc.

• Loss of interest for common activities – Depressed patients demonstrate not only loss of pleasure, but also reduction of motivation, often in all areas of life. Work, domestic life and all other activities seem meaningless and uninteresting.

• Feeling of hopelessness – People who are too depressed, feel that they cannot cope with even smaller tasks, including their personal hygiene and aesthetic appearance.
The depressed patients suddenly feel that they cannot carry out certain tasks required at school, at work or at home.
The individual, who sees nothing except bad luck for the future, may lose all his motivation to proceed any further.
Getting up in the morning may take long hours.

• Suicidal ideation or actions – Suicide is the most serious complication of depressive disorder and unfortunately it is very common. 1% of all depressed patients commit suicide within 12 months following the onset of the depressive episode.
Among patients with continuous episodes, 15% of them commit suicide.
Depressed patients are posed to great risk for suicide even 6 to 9 months after symptomatic improvements. This phenomenon, which seems paradoxical, may occur because the patient has acquired enough energy and motivation to complete suicide plans, but has not acquired a positive

constant vision regarding life, in order to be able to choose another alternative to suicide.

• Feeling of guilt, worthlessness and lowered self-esteem – Depressed patients often rebuke themselves for shortcomings they think they do possess and exaggerate them, but they think that these are comprehensible to others. These people fail to really assess their own capabilities in daily tasks.

• Difficulty in concentration – Depressed patients might be totally concerned with internal thoughts, to the extent they have difficulty in paying attention to the external environment.
They complain about bad memory or prove unable to focus on leisure activities, such as reading or watching TV.

• Psychosis – Depression might be rather severe, it may involve psychotic symptoms, more often hallucinations and delusions.
The content of hallucinations and delusions matches with mood, for instance: patients have delusional trusts and feel they are persecuted because they are sinners (my husband tries to kill me, because I am a bad woman).
Hallucinations appear as if there are voices reprimanding patients for their mistakes.

• Somatic symptoms – A certain range of somatic symptoms are found in the depressive syndrome, such as: headache, backache, muscular cramps, nausea, vomiting, constipation, heartburn, hyperventilation and chest pain.

3.2 Diagnosis – Management

DSM - IV criteria on Major Depressive Episode

A. 5 (or more) of the following symptoms, are present during the same fortnight period and show changes from prior level of functioning. At least one of the symptoms is: (1) depressed mood or (2) loss of interest or pleasure.

1. Most of the time depressive mood, almost every day, as it is found from patient's own reporting as well as from observations carried out by other people.

2. Marked reduction of interest/pleasure in all, almost all activities, most of the day, nearly every day.

3. Marked loss (decrease) of weight without keeping diet or gain of weight.

4. Insomnia or increased sleeping (hypersomnia) almost every day.

5. Psychomotor agitation or retardation almost every day.

6. Fatigue or diminished energy almost every day.

7. Feeling of worthlessness or extreme guilt.

8. Reduction of capability to think or concentrate, or indecisiveness almost every day.

9. Constant thoughts of death (not just fear from death), continuous suicidal ideation, without any specific plan, or even planned attempts of suicide.

B. Symptoms cause significant clinical problem or impairment of social and professional fields and also of other important fields of functioning.

C. Symptoms are not caused by a major loss, for instance: after losing a loved person, symptoms persist for more than 2 months and are characterized by considerable functional impairment, morbid preoccupation with worthlessness, suicidal ideation and psychotic symptoms with psychomotor retardation.

D. Symptoms are not caused by direct physiological effects of certain substances (eg: drug abuse, medication) or general medical illnesses (eg: hypothyroidism).

E. Symptoms are not caused by a major loss, for instance: after losing a loved person, symptoms persist for more than 2 months or are characterized by considerable functional impairment, morbid preoccupation with worthlessness, suicidal ideation and psychotic symptoms with psychomotor retardation.

Unipolar Depressive Disorder is characterized only by depressive symptoms, with no history of manic episode, either mixed or hypomanic.

This criterion differentiates it from the group of bipolar disorders.
Among unipolar depressive disorders, three main diagnostic groups (DSM-IV) can be distinguished:

1. Major depressive disorder – single episode or recurrent one (ICD-10 depressive episode or recurrent depressive episode).

2. Dysthymic disorder (ICD-10 Distimia) and other chronic depressive disorders.

3. "Sub-threshold depression" (depressive disorder unspecified elsewhere, including also minor depressive disorder, recurrent brief depressive disorder and symptomatic subsyndromal depression) (ICD-10 unspecified depressive episode, unspecified mood disorder, recurrent brief depressive disorder).

Dysthymic disorder – Mood is depressive for at least 2 subsequent years, most of the day and most of the days.

Two of the following symptoms are at least present:

- Abnormal appetite/excessive eating

- Insomnia/drowsiness

- Lowering of energy/fatigue

- Lowering of self-esteem

- Abnormal poor concentration/difficulty in taking decisions

- Feeling of hopelessness

During the 2-year period, the above symptoms have always been present to the patient. Dysthymia excludes the criteria of major depression, but presents decreased depressive mood.

Clinical course

Major depressive disorder develops symptoms within several days or weeks or it may be developed quite unexpectedly, especially following a life stress.
Anxiety or panic attacks may precede several months prior to a depressive episode.
Acute depressive episodes have good prognosis and without therapy.
Most of acute depressive episodes last 6 months and 80% of patients recover within 2 years, while 50 or 60% of those who have a first depressive episode, will experience 1 or more recurrences in their life.
A few people recover completely after one episode.
Most of people return to their previous functioning after the depressive episode. 33% of those with major depressive episode never recover completely. Chronicity of the illness is favored by the old age, family

history for depression, long-lasting problems of personality and lack of social support.

Dysthymic disorder – Unlike major depressive disorder, dysthymic disorder has not a clear-cut onset, but patients feel as if this disorder has always been present to him.

Chronic course is more frequent than episodic course.

Social and professional impairment can be slight or moderate.

Hospitalization is rarely necessary, only in cases when the patient attempts to commit suicide.

Suicide – A significant part of persons who commit suicide show depression symptoms.

The assessment of suicide risk in all mood disorders is higher than 15%, with a major risk period within 5 years of the onset of the relevant disorder.

The suicide risk for patients with mood disorders is 30 times higher than that of the common population.

4. PREVENTIVE CARE AND EDUCATION OF THE PERSON CONCERNED

The patient showing depressive symptoms is rather delicate. His counseling and education requires good knowledge on depressive disorders; however, two aspects are to be emphasized.

First, the physician should explain that his situation might be due to depression, since the patient might require different explanations. The physician should further ensure the patient that depression can be treated and that there are all opportunities to cure the depressive situation and to return to his previous state; he should give him hope for overcoming this situation.

Based on the questionnaire outcomes, the physician should be careful to follow all recommendations resulting from the testing outcomes.

If the patient must be immediately referred to the specialist, the physician should explain clearly to him this necessity, he should tell him the path to be followed (the patient might have cognitive impairments or reluctance and lack of energy; besides, many aspects apparently simple, may not be

so simple to him) in order to reach the referring place.

The physician should contact the patient's relatives to assist or even "force" him to facilitate the management of the relevant situation and to ensure that the patient's treatment will follow the right path.

Alternatively, the physician should know the symptoms of depression (described above) and explain to the patient what should be regarded as alert signals to prevent aggravation of the situation.

Second, in cases of suicidal plans or thoughts, the physician should be more alert on the situation. He should speak to the patient without hesitation and with appropriate words, on suicide and tell him that he is there to help him and giving him hope. Alternatively, the physician should ensure that the patient's relatives will take better care, at least until the next nearest visit to the specialist.

5. ALGORITHM OF REFERENCE

6. ABILITES OF THE PRIMARY CARE STAFF

6.1 The family physician should be able to:
• Understand and explain in a comprehensible manner in line with the patient's level, how to fill out the questionnaire.
• Know main symptoms of depression and if necessary, explain them to the patient or his family members.
• Know well the questionnaire and interpret the scoring correctly.

6.2 The family nurse should be able to:
• Understand and explain in a comprehensible manner in line with the patient's level, how to fill out the questionnaire.

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QUESTIONNAIRE ON PATIENT'S HEALTH (PHQ-9)

NAME:_____ DATE_____

Over the past two weeks, how often were you concerned with the situations described as follows:
Tick the answer with √.

	Not at all	Several days	More than half of the days	Almost every day
1. Little interest or pleasure in doing things	0	1	2	3
2. You feel bad, depressive mood (sadness) or hopeless	0	1	2	3
3. Difficulty to sleep (getting to sleep or staying asleep once you sleep) or sleep more than usual	0	1	2	3
4. You feel tired or have little energy (strength)	0	1	2	3
5. You have no appetite or eat more than previously	0	1	2	3
6. You are sorry about yourself or think that you have failed and have neglected yourself or your own family	0	1	2	3
7. Difficulty in concentration about things you usually do, such as reading a newspaper or watching TV	0	1	2	3
8. Walk or speak slowly which is different from what you usually do and the others have already noted, or otherwise, you are nervous, you fail to make yourself comfortable and move around more than usually	0	1	2	3
9. You think that it would be better had you died, or you think to hurt yourself	0	1	2	3
TOTAL				

10. If you have marked any of the above problems, to what degree these problems caused difficulties to you to work, take care of certain things at home or even leave you from other people.

No difficulty at all   _____
Somehow difficult   _____
Very difficult   _____
Extremely difficult   _____

PHQ-9 Questionnaire on assessment of the patient's depression

For the initial diagnosis:

1. The patients fill out the questionnaire PHQ-9 for a rapid assessment of depression.

2. If there are at least 4√ in the area marked with grey (including questions 1 and 2) we might be dealing with a depressive disorder. Assess the amount to determine the severity of the situation.

Think about major depressive Disorder
•if there are at least 5 in number 3, in the area colored with grey (one of them belonging to question 1 or 2)

Think about other depressive Disorders
•if there are at least 2-4 in number 3, in the area colored with grey (one of them belonging to question 1 or 2)

NOTE: Considering that the questionnaire is based on the patient's self-reporting, all answers should be verified by the physician and the final diagnosis is determined based on clinical evidence which should take into account how well has the patient understood the questionnaire as well as the necessary information obtained from the interview with him.

The diagnosis of major depressive Disorder or other depressive Disorders require also impairment of social and occupational functioning as well as other parts of functioning (question 10); in addition, even exclusion of normal mourning, of any manic episode (bipolar Disorder), or organic disorders, taking medications or other substances which may cause depressive symptoms.

In order to monitor the severity of symptoms in due time for new diagnosed patients or for patients under treatment for depression:

1. Patients can fill out the questionnaire initially and during regular intervals (eg.: every 2 weeks) at home and bring them to the next meeting to assess the points, or they can fill out the questionnaire every time they come for their next visit.

2. Make a summary of points in each column. For each √ : Several days =1; More than half of the days = 2; Almost every day = 3.

3. Make a summary of points in each column to get points in TOTAL

4. See the scoring table of PHQ-9 to interpret TOTAL points

5. The results may be recorded in the patient's file to help you define the purpose of treatment, to assess the degree of response to treatment and to help therapeutic interventions.

Scoring: Add all boxes marked in PHQ-9
For each √: Not at all = 0; Several days = 1; More than half of the days = 2; Almost every day = 3.

Interpretation of TOTAL points

Points in TOTAL	Severity of depression
1-4	Minimal depression
5-9	Slight depression
10-14	Moderate depression
15-19	Slightly major depression

Chapter 4

DIABETES TYPE 2

Subtopics:

• On the importance of screening Diabetes Type 2

• Criteria for the diagnosis of Diabetes Type 2

This clinical guideline provides recommendations for screening of people which will be carried out in the doctor's office and other healthcare settings.

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycaemia resulting from defects in insulin secretion, insulin production or both.

Diabetes Mellitus type 2 is the most common form of the disease, which is often asymptomatic in its early stages and can remain undiagnosed for many years.

This guideline does not consider Diabetes Type 1 or Gestational Diabetes (GDM). Because of the acute onset of symptoms, most cases of Diabetes Type 1 are detected shortly after symptoms have started. Extensive clinical testing of asymptomatic individuals for presence of antibodies related to Diabetes Type 1 cannot be recommended at this period as a means for identifying individuals at risk. The causes are as follows:

1) Limit values for some of the immune tests have not been completely determined in the clinical settings.

2) There is no consensus as to what action should be taken when a positive result of autoantibody test is received.

3) Given that incidence of Diabetes Type 1 is low, testing of healthy children will identify only a very small number (0.5%) who at that moment can be "Pre-diabetics".

Clinical studies are underway to test different methods for preventing Diabetes Type 1 to high risk individuals (eg. brothers and sisters of patients with Diabetes Mellitus type 1). These surveys can detect an effective means for prevention of Diabetes Type 1 in the future.

Chronic hyperglycaemia of diabetes will be associated with impairments of different organs, particularly, eyes, kidneys, nerves, heart and blood vessels.

Individuals with undiagnosed Diabetes Type 2 are also posed to high risk for cerebral insult, coronary heart diseases and vascular peripheral diseases, rather than individuals among population having no diabetes. They also have a greater likelihood of having dyslipidemia, hypertension and obesity.

Considering that early detection and immediate treatment can reduce complications of diabetes, it was designed a program for screening population for Diabetes Type 2.

REASONS FOR SCREENING

    1. Diabetes Type 2 takes a long asymptomatic period in which it can be detected.

    2. There is a high percentage of individuals with undiagnosed diabetes among population (about 50).

    3. At the moment of diagnosis, a significant part of patients have shown microvascular complications of diabetes.

    4. Prevalence of diabetes is increasing worldwide including also Albania.

    5. Presence of long-lasting effects from complications of diabetes.

BENEFITS OF EARLY DIAGNOSIS OF DIABETES TYPE 2

    1. Improvement of life quality resulting from the reduction of severity of diabetes and its early treatment.

    2. Extension of onset period of micro and macrovascular complications from diabetes.

    3. Reduction of hospitalizations that constitute a cost to the individual and healthcare service as well.

PREVALENCE OF DIABETES AND RISK FACTORS

Prevalence of diabetes assessed to adults was 8.7% in 2002 (USA). Specific subgroups of the population, however, have a much higher prevalence of the disease than population as a whole. These subgroups have risk factors that directly cause diabetes or are associated with it. Correlation of risk factors with development of diabetes is not 100%. However, the greater the number of risk factors present in an individual, the greater the likelihood that this individual have or develop diabetes. Meanwhile the likelihood that an individual without risk factors develop this disease is relatively low. The risk of developing diabetes type 2 is increased, with ageing, presence of obesity and lack of physical activity.

Diabetes Mellitus Type 2 is more common to an individual with family history of the disease and to members of certain racial/ethnic groups.

In addition, diabetes type 2 is more common in women with preliminary Gestational Diabetes (GDM) or syndrome of polycystic ovarian in the ovary,

in individuals with hypertension, dyslipidemia, impaired glucose tolerance (IGT), or even impairment of fasting glycaemia (IFG).

THE AIM OF THE SCREENING TEST FOR DIABETES TYPE 2

"Screening" test is a process carried out for identifying individuals with high risk for development of the disease.

It is unlike diagnostic test carried out for confirming diabetes in individuals with symptoms of hyperglycaemia or have resulted positive in the screening test.

In the case of diabetes, the screening test might also be a diagnostic test, (eg. the level of glycaemia → 126 mg/dl in an individual with symptoms).

The aim is designing a program for prevention of diabetes type 2, early detection of asymptomatic individuals, intervention in lifestyle and early medical treatment which reduce the risk of complications from diabetes.

Screening of population is more effective if carried out at the healthcare centers because:

1. There is more accuracy in the interpretation of the test.

2. The individual who results to be positive from the screening test can receive more accurate information from the healthcare staff for subsequent follow-up.

RISK FACTORS FOR DIABETES TYPE 2

1. Age ↗ 45years old;

2. Overweight (BMI ↗ 25kg/m2);

3. Family history for diabetes (parents, sisters, brothers);

4. Lack of physical activity;

5.   Presence of IGF or IGT (Pre-diabetes);

6.   Presence of Gestational Diabetes or baby with birth weight ↗ 4 kg;

7.   Arterial hypertension (TA ↗ 140/80 mmHg);

8.   HDL cholesterol ↖ 35mg/dl (0.9mmol/l) and the level of triglycerides ↗ 250mg/dl (2.82mmol/l);

9. Polycystic ovary syndrome;

10. History for vascular disease

RECOMMENDATIONS ON ASSESSMENT OF HIGH RISK INDIVIDUALS

Based on experts' opinion screening of high risk individuals should be carried out:

1.   At intervals of 3 years, starting from the age of 45 years old particularly those with BMI ↗ 25kg/m2. The 3-year period is chosen because there is little likelihood that a complication occurs from diabetes within 3 years from the negative test. Such a testing is carried out in younger individuals having overweight or one or more of the risk factors presented above.

2.   If an individual is presented to the healthcare staff with symptoms of hyperglycaemia (polyuria, polydipsia, weight loss, dry mouth), he should then be subject to the diagnosing test for diabetes as well as assessment of complications of diabetes.

3.   This testing should be taken into consideration particularly in cases of high risk individuals, such as:

•   Individuals with a family history of diabetes type 2 in the first and second degree relatives.

•   Have symptoms relevant to the resistance of insulin (acanthosis, nigricans, hypertension, dyslipidemia, syndrome of polycystic ovary).

CRITERIA FOR THE DIAGNOSIS OF DIABETES TYPE 2

NORMOGLYCAEMIA   IFG or IGT   DIABETES

FPG ←100 mg/dl
2-h PG ←140 mg/dl   FPG ↗100 and ←126 mg/dl (IFG)
2-h PG ↗140 and ←200 mg/dl (IGT) FPG ↗126 mg/dl
2-h PG ↗200 mg/dl
Symptoms of diabetes and randomized measurement of glycaemia ↗200 mg/dl

 TESTS:

Diagnostic tests of diabetes are:

1. Fasting plasma glucose test (FPG)
Fasting plasma glucose test requires that the individual should have taken zero calories for at least 8 hours. For the glucose tolerance test, it is recommended intake of 75 gr glucose dissolved in ½ l of water, and after 2 hours is measured.

2. Glucose tolerance test (2-h PG)
The most preferred test for diagnosis of Diabetes is the fasting plasma glucose test (FPG) because:
      - Is easier to be administered
      - Is faster
      - Is more acceptable to the individual
      - Is low-cost.

INTERPRETATION OF THE TEST

1. A certain level of fasting plasma glucose (FPG) ↗ 126 mg/dl (7.0 mmol/l) is an indicator that requires a repeated test another day for confirmation of diagnosis. If in the next measurement the value of fasting plasma glucose results ↗ 126 mg/dl, then is proved the presence of diabetes.

2. If FPG ← 126mg/dl (← 7.0 mmol/l) and is highly suspected of diabetes, then is carried out the oral glucose tolerance test (OGTT).
A certain value of postprandial glycaemia (OGTT) ↗ 200 mg/dl (11.1 mmol/l) is a positive test for diabetes and should be repeated on a randomized day.

3. Individuals having no diabetes with FPG →100 mg / dl (5.6 mmol / l), but ← 126 mg / dl
(7.0 mmol/l) are considered to have impairment of fasting glycaemia (IFG), and those with values 2-h në OGTT →140 mg / dl (7.8 mmol/l) but ← 200 mg / dl (11.1 mmol/l) are diagnosed with (IGT).

4. Normoglycaemia is determined as levels of plasmatic glucose ↖ 100 mg /dl (5.6 mmol /l) in the fasting plasma glucose test (FPG) and a postprandial value 2- h ↖ 140 mg / dl (7.8 mmol/l) in the oral glucose tolerance test (OGTT).

5. In certain cases is performed randomized measurement of sugar level, which when resulting at values ↗ 200 mg/dl (11.1mmol/l) in cases of individuals with diabetes symptoms determines the diagnosis of diabetes.

6. A confirming test of FPG or OGTT ends on another day in cases when clinics is lacking.

7. The test value of HbA1c that assesses the glycaemia level over the past 3 months is used for monitoring the glycaemia rather than its diagnosis.

8. It is recommended measurement of glucose in the venous blood and not capillary one due to inaccuracy of the latter. Measurement of capillary blood glycaemia is used for self-monitoring of diabetes, but not as a screening test.

HEALTHCARE STAFF

The healthcare staff who will be in constant contact with the patient will be the Family Physician, FP (or Family General Practitioner). Considering that the mission of Healthcare Center is to provide to the community a healthcare service of high quality, full, continuous, integrated and accessible to all.
The family physician should be able to:
      1- Identify high risk groups
      2- Have good knowledge of examination techniques
      3- Make interpretation of tests

4- Address the identified cases to specialized structures.

The family nurse should be able to:
      1- Identify high risk groups
      2- Have good knowledge of examination techniques
      3- Have good knowledge on screening test and diagnosis test
      4- Address the individuals at risk for diabetes to the FP.

Tools required for healthcare service:
      1.   At the Healthcare Center
          a. Glucometer (Glucose meter)
          b. Scale
          c. Gauge for measuring height
          d. Meter for abdominal circumference

      2.   At healthcare centers of laboratory capacities
          a. Glycaemia measurement in venous blood (laboratory)
          b. Scale
          c. Gauge for measuring height
          d. Meter for abdominal circumference
          e. Measurement of HbA1c
          f. Measurement of lipids in blood.

CONCLUSION

Diabetes is often not diagnosed until the appearance of complications, and approximately 30-50% of individuals with diabetes are undiagnosed.

Even though the burden of diabetes is widely known, a well characterized natural history, and there is strong evidence for benefits from treatment of cases diagnosed through common clinical treatment, there are no randomized studies to demonstrate the benefits of early diagnosing by way of screening asymptomatic individuals.

However, there is sufficient evidence to justify screening in a clinical setting to individuals at high risk.In addition, clinicians should be alert regarding assessment of clinical suggestive presentations of diabetes.

Chapter 5

LABORATORY TESTS FOR PRIMARY CARE

Subtopics:

•Nursing procedures for taking and storing of biological samples

•Clinical evidence on laboratory tests
- Clinical tests
- FOBT tests
- Biochemical tests

DRAWING VENOUS BLOOD FOR LABORATORY ANALYSIS

In order to draw blood to carry out examinations contained in the Periodic Primary Care Package, the nurse must perform the procedure of vein puncture and draw a sufficient amount of blood for all tests to be carried out. The Nursing Code of Ethics and Deontology enables any nurse to operate for sampling of venous blood.

The Puncture Vein Procedure
The puncture vein procedure is one of the moderate difficulty practices of the nursing process. This procedure requires high professional ability, adherence to ethics, necessary procedural rules, concentration and full emotional stability.

•First, a phlebotomist should possess professional abilities, politeness in communication and contact with patients who will host and manipulate.

•Identify and check compliance with the electronic register of the patient's data through simple questions about the Name, Last name, Age, Residence.

•Ask for the notification form for conducting the checkup, and in the event the patient lacks it, verify the form through the register.

•Prepare all necessary materials for taking the blood sample, tubes, tight rubber band (tourniquet), syringes, cotton, alcohol, etc.

•Place the patient comfortably on a chair or a visiting bed.

•Wash hands with soap and running water, dry them well and wear gloves latex.

•Choose a proper place to enter the vein. Place the tight rubber band 2-3cm above the place you have targeted the vein.

•Do not fasten the tight rubber band very tightly and don't keep it fastened for more than 1 minute before you start drawing blood.

•Palpate the vein carefully and attentively until you feel it your finger paid.

•Once you choose the vein, clean the area around it with a alcohol-soaked cotton, through circular moves starting from the center and finishing outside it. Wait a few seconds until the relevant area is air-dried (not with cotton). After the area is cleaned, it should not be touched or palpated again. If you consider it necessary to reassess the vein through palpation, the area should be cleaned again, before starting to carry out the venipuncture.

•Ask the patient to tighten his fist only once, without making "the pump" effect. Hold with your left hand the patient's arm by gently pulling his arm's skin between fingers, in order to fix the vein. Insert, quickly and highly concentrated, the needle through the skin into the lumen of the vein.

•The needle and the arm surface should form an angle of 15-30 degrees.

•Avoid multiple surveys to insert the needle if you do not find the vein immediately! If blood runs slowly, adjust carefully the position of the needle into the vein.

•When the last tube is filled, or in the case of syringe, which should be filled to the appropriate level, release carefully the tight rubber band and remove it from the arm with your left hand.

•Pull the needle back carefully, with an easy and quick movement so as not to cause pain.

•Put quickly dry cotton or clean gauze into the punctured area. Exercise necessary puncture to avoid creation of hematoma or bleeding out of the vein. After exercising pressure for 1-2 minutes, put a special on the punctured area.

•Put the materials already filled into suitable containers for preservation of blood samples.

•Make the necessary notes, according to the request labeled in the filled tubes.

Attention! The most suitable area for drawing venous blood is cubital fossa, but dorsal veins are preferable as well. The veins of the legs are the last source because of the high opportunity of causing complications and pains to the patients.

Attention! Separation of blood into proper tubes should be made carefully according to the type of the analysis and the tube colors, as this is very important and may greatly affect the results and may result in a high incidence of hemolyzed samples. These procedures, as well, may affect the extent of formation of coagulant. In the case of using many tubes during a phlebotomy alone, the bout of drawing should be accomplished as specified in the tube label; the tube puncturing tool may be contaminated with additive from the previous tube. The serum tubes without additives should be used the first and subsequently those with coagulation activators. Plasma tubes should be taken after those of serum, as small amounts of heparin or EDTA (other anticoagulants) which contaminates the serum tube may slow-down coagulation. After taking tubes, it is important to mix them carefully. Most tubes contain additives, and they should be clearly dispensed all across the tube in order to be effective. Blood already taken in the tubes, which contain heparin, may start to form micro-coagula, since the coagulant concentration may be low in certain areas of the tube before mixing. Serum tubes today are made of plastic, not of glass and contain additive to stimulate coagulation. If these tubes don't mix well, formation of coagulant will not start properly and will take more time to be completed. Excessive mixing may cause hemodialysis of the specimen.

The order of filling tubes

Filling of tubes with blood drawn from the vein should be made according to a specific order, to avoid contamination with solutions already present into the tubes. The recommended order for vacutainer plastic tubes is as follows:

•First: Blood tube for culture (with yellow cap or yellow and black cap)
•Second: Tube for coagulated blood (with light blue cap)
•Third: Tubes without additive (with red cap)
•Finally: Tubes with additive according to the specified order.
Attention! Areas to be avoided during the choosing procedure of the vein.
•Expanded cicatrization generated from burns or surgical interventions.
•Hematoma – if there is no other suitable area, draw blood away the hematoma area.
•Vein under intravenous therapy process (IV) / or blood transfusion, as the solution can spoil the blood sample, therefore take it on the other arm, if possible.
•Closing cannula with heparin in the existing vygons placed previously into the vein.
•Edematous extremities.
•Don't pull the syringe plunger forcefully to fill it quickly.

Urinalysis

Taking of urine sample for analysis can be carried out for two purposes:
1. Complete urinalysis
2. Urine culture

Some general rules for taking samples at home or at the healthcare center:
•Wash hands well with water and soap, dry them well after washing

•With one hand clean the genital area using antiseptic napkins and rinse with water

•Pour off the first portion of urine

•Fill the container opened in advance with the middle portion of urine (not fully, about 2/3); don't touch the container inside!

•Pour off the remaining portion of urine

•Wash your hands

•Hand the sample to the nurse of the relevant healthcare

The patients should be notified in advance on medications, supplements or foods that may interfere in the examination

Characteristics of the container used for sampling:

•The container used for taking the urine sampling must be suitable for storage and transport.

•The container must be made of inert material compared to urinary ingredients; it must be clean and have good closing.

•Most of laboratories prefer using sterile containers designated to collect urine.

•The container is not reusable!

•The container must have a capacity of at least 50ml and diameter at least 4cm. The recommended volume for examination is 10,12 or 15 ml.

•The container must have a good closing, in order to prevent spilling of specimen during transport. In addition, the cap must be easily applicable at the closing and opening.

•The laboratory or the healthcare center where the sample is handed, must ensure accurate identification and proper conditions for storage of sample integrity, if the examination can't be carried out within two hours (refrigerator conditions). In cases when examination cannot be carried out within two hours, it is recommended using sterile containers for specimen collection.

•The container must have a proper area designed for identification (in the container, not in the closing cap) where can be marked:

The patient's full name
Identification number
Date and time of specimen collection

FECAL OCCULT BLOOD TEST
Sample collection
Method for sample collection

The biologic sample used in FOBT is stool.
Stool sample can be taken by the patient at home or at the healthcare center.
It may be collected directly from the toilet, through a toilet paper or clean container. Through a small spoon of the threaded-cap bottle, which is in the iFOBT kit, designed for this purpose, collect sample from about 5 different places of stool! Close the cap with the small spoon inside and shake until it is fully dissolved with the extraction buffer which is inside the bottom!
Label the container with your name, last name and the date of collecting the stool sample! Do not ever collect stool at a clinic shortly after conducting a rectal examination!

[Emri, Mosha, Data]

Exclusion criteria

•Do not ever use samples after eight (8) days!

Storage of samples

Storage of biological sample should be made appropriately in order to prevent contamination or degradation. The recommended conditions are as follows:
- Blood   -200 C for some years
- Urine   -200 C for some years
- Oral secretions   4 to -200 C in the presence of preservatives for
                                        up to 2 months

•Stools   4 to -200 C in the presence of preservatives for up to 2 months

CLINICAL TESTS

Complete Blood Count
Test principle – Hemograma or complete blood examination (complete blood count – CBC) consists of a series of tests, used to assess composition and concentration of blood cellular compounds.
Clinical Values – Hemograma is the total blood count (CBC), known also in practice as the complete blood examination, the first laboratory examination used to be informed on general health situation, and to be oriented on the first diagnosis of a series of health-related disorders, including anemia, infection and leukemia, as well as on monitoring of patients with cancer during their chemotherapy.
Hemograma repeated in time helps us also in monitoring treatment of anemic, infectious, leukemia syndromes, or even in diagnosing and monitoring of other disorders associated with blood cells (eg. hemolytic syndrome) or with important having impact in hematopoiesis, heparin, kidneys, etc.
Instruction for preparing the patient

•The patient should be fasted

The patient should not consume food for 10-14 hours before blood is drawn. He is only allowed to drink water, if he is thirsty.

Clinical Data

There are three normal cellular compounds circulating in bloodstream: red blood cells, also called erythrocytes (RBC), white blood cells, also called leukocytes (WBC) and platelets (PL).

Red blood cells (erythrocytes) are the most common type of organism. As a matter of fact, they are not real cells, as they don't contain any nuclei

and intracellular organelles. The basic function of RBC is creating and maintaining an appropriate environment providing physical and functional integrity of hemoglobin (Hb). Hb carries oxygen into issues and removes carbon dioxide and H+ ions produced during metabolism. RBC are final product of eritropoeza, that develops in the bone marrow, a process which is under control of erythropoietin produced in the kidney. Hemoglobin is synthesized in precursor cells of red blood cell, eritroblast and reticulocyte. This synthesis is controlled by intracellular concentration of heme and needs kelatin processing of Fe2+ from 4 nitrogen atoms located in the center of porphyrinic ring. The progress of red blood cells from blastic precursors in the bone marrows requires a period of 5 days. They are released into circulation as reticulocytes (they are distinguished from erythrocytes only by specific staining). Reticulocytes are transformed into red blood cells in 1 day. Given that red blood cells have no organelles, they don't make protein synthesis as well as self-repair. For this reason RBC have a limited lifespan up to 120 days, after which period they are sequestrated and dissolved into spleen.

Concentration of Hb in the total bloodstream – otherwise called HB. Normal values of Hb are closely related with age and sex. It is proved that males posses higher values of Hb than females and adults posses higher values than children (except neonates having the highest values of all).

Number of red blood cells, RBC – describes the number of RBC for blood volume unit. The result is expressed as a number of cells for volume unit, more specifically cells/μl. The most common source of mistake is artificial reduction of RBC number in cases when cells attach to each other and are counted as a single cell.

Hematocrit, Hct or PCV (packed cell volume) – expresses the ratio of the total volume of RBC against blood total volume in a certain sample. The result is expressed as a proportion both without volume unit (eg. 0,42), and with volume unit (eg. 0,42L/L or 42cL/L). An archaic manner of expressing the result is in percentage (eg. 42%).

Red blood cells indices. Three above cardinal parameters already measured are used for mathematical calculation of red blood cells

indices, which constitute the middle corpuscular volume (MCV), middle corpuscular hemoglobin (MCH) as well as middle concentration of Hb in red blood cell (MCHC).

MCV – is the middle volume of RBC counted in a sample. The relevant value is expressed in units of volume, in this case the unit is considerably small – femtoliter (fL=1015liter). When MCV is low, we mean here microcitosis (small RBC), the normal MCV refers to normocitosis, while high MCV refers to macrocitosis.

MCH expresses average amount of Hb in red blood cells and is measured in pictogram mass unit (pg=1012gram). Given that small RBC have less Hb than large RbC, MCH variation tends to follow that of MCV. MCH has little diagnostic value as a separate parameter.

MCHC expresses amount of HB in red blood cells. Considering that total bloodstream has almost ½ of volume red blood cells and the whole circulating hemoglobin is exclusively located inside them, it is expectable MCHC to be approximately twice concentration of Hb in bloodstream and to be expressed with the same unit. For normal MCHC, either high or low, we distinguish red blood cells respectively normo, hyper and hypochromic.

RDWW (red cell distribution weidth). MCV provides data on average volume of red blood cells in a sample. MCV can be normal and when special cells of population that is assessed vary greatly in volume from one another. RDWW is a standardized parameter, similar to the standard deviation which mathematically expresses the magnitude of distribution about the average in the red blood cells population. Values already higher than the normal ones are considered anisocytosis. The rate of anisocytosis can be automatically determined by RDWW.

White blood cells (leukocytes) have as their main function protection of organism from infections. Most of white blood cells are produced in the bone marrow, some of them are produced in thymus and others are matured in other tissues. White blood cells exercise self-control of their synthesis as they release in bloodstream signal peptides, which operate in the stem cells (pluri-potent) of the bone marrow. White blood cells are

capable to migrate from bloodstream into surrounding tissues. The first step in assessing white blood cells is identification of their total number, WWBC and subsequently quantification identification of their different classes (each class has its own specific function and its oncogenicity semi-independent from others). The differentiated number of WWBC can be reported as a relative number (percentage of total number of WWBC) or as absolute number (cells number/μL).

Neutrophils – constitute the majority of circulating WWBC and have the shortest half-life in circulation. After emerging from the bone marrow, they circulate for at least 8 hours until reaching the tissues (through diapedesis), where they live for at least one week. They are produced in response to acute stress, infection, infarction, trauma, emotional stress and other stimuli. At the area of impairment they phagocytose "invaders" and other harmful substances by committing suicide in this battle. Segments are mature forms of neutrophils. Upon stress situations (eg. reactions of acute phase) early forms such as sticks and sometimes myelocytes can be added into bloodstream. This situation is known as left deviation of leukocyte formula. The number of sticks is an indicator of acute stress.

Monocytes – are the biggest WBC with granular cytoplasm. Monocytes and neutrophils derive from the same pluri-potential cell. Monocytes are produced from the bone marrow, circulate 5 to 8 times a day and then are inserted into the tissues, where are mysteriously transformed into histiocytes. They are able to process foreign antigens and lead them to immune-competent lymphocytes. In addition, they have phagocytic powerful activity, but unlike neutrophils, histiocytes, survive against phagocytosis of microbes. For instance, mycobacterium can live for years in histiocytes.

Eosinophils – although included in the group of granulocytes along with neutrophils and basophils, it is proved that they derive from a different pluri-potential cell. Eosinophils contain large cytoplasmic granules stained in red and a nucleus that has more than two lobes. They move in amoeboid way and have phagocytic ability. The number of eosinophils is increased and they play an important role in allergic response. It is thought that

they inactivate SRA-A (slow reacting substance of anaphylaxis), neutralize histamine and inhibit degranulation of mast cells. Circulating half-life of eosinophils is similar to that of neutrophils.

Basophils – are a rarity in circulation. They can be easily identified by large purple granules. There are authors who think that basophils and mast cells are versions of respectively blood and tissues of the same cellular type. Other authors think that these are two different cellular types. In active allergic situations basophilic cells reduce in number, while the number of mast cells is increased. Basophilis secrete histamine, mediate inflammatory response and secrete the activating factor of platelets.

Lymphocytes - take the second place with regard to the circulating number after neutrophils. Their half-life varies considerably, from a few days to a lifetime. Unlike neutrophils, monocytes and eosinophils, lymphocytes can move from vasa vasorum into extravasal tissues and in the reverse direction. They are able to transform into cells similar to blasts and therefore, transformed, can multiply immunological actions. Lymphocytes B synthesize anticorps, while lymphocytes T participate in immune specific response. Activated lymphocytes increase the surface reaching or exceeding the diameter of monocytes and become basophils (cytoplasmic ARN and proteins are increased), their cytoplasm becomes granular, thus reflecting addition of organelles. These transformed structures are labeled viral or atypical lymphocytes and should be distinguished from leukemic blasts.

Platelets are cellular fragments, derivates of megakaryocytes functioning in the blood coagulation. They are involved in the adhesion and platelet aggregation; substances and factors released from platelet play their role in this activity, but also its receptor surface.

DATA CLINICAL INTERPRETATION

The red Series

Differential diagnosis of anemia

Anemia is a clinical situation in which the circulating blood losses its ability to provide adequate supply of tissues with oxygen.
The main laboratory manifestations of anemic syndromes are:

-Reduction of hemoglobin

-Decrease of hematocrit

-Reduction in the number of RBC

The number of red blood cells might cause confusion in setting the diagnosis of anemia. Actually, in certain cases with microcytic anemia, such as thalassemia, generally the number of red blood cells is high. According to the WHO, anemia is present if concentration of Hb in bloodstream is decreased below 13g/dl in males and below 12g/dl in females.
There are different criteria on classification of anemia. According to pathogenesis, anemis syndromes are divided into:

-Hypo-regenerative (low number of reticulocytes)

-Regenerative (high number of reticulocytes)

The number of reticulocytes reflects the response of bone marrow to anemia. This parameter is very important, especially in cases when anemia is accompanied with normal MCV.
According to the morphology of red blood cells, anemia is classified as follows:

-Microcytic (MCV ←82fL)

-Normocytic (MCV 82 – 98fL)

-Macrocytic (MCV → 98fL)

According to the clinical onset anemia is classified as follows:

-Acute anemia (usually haemorrhage or hemolysis)

-Chronic anemia

Microcytic anemia results from insufficient or defective production of hemoglobin. The main causes of this form of anemia may be associated with:

-Defects in the synthesis of heme as in the case of iron deficiency anemia (IDA) or anemia of chronic disease (ACD). The latter is often presented as normocytic anemia.

-Defects in the synthesis of globin chain, such as in thalassemia (eg. beta thalassemia) or haemoglobinopathies (eg. drepanocitosis).

-Sideroblastic defects inherited or acquired, as in the case of lead poisoning.

Laboratory tests about the differential diagnosis of IDA, ACD, as well as thalassemia syndromes are:

-Sideremia
-Ferritin
-Transferrin
-Soluble receptors of transferrin in serum
-Electrophoresis and/or chromatography (HPLC) of Hb
-Hepcidin
-Intraerythrocytic ferritin
-Erythrocytic zinc protoporphyrin

In IDA the highest ferritin, the lowest sideremia, accompanied with higher TIBC and lowered saturation of transferrin; in peripheral bloodstream is found hypochrome, microcytosis and anisocytosis (size differences of RBC) and poikilocytosis (form differences of RBC). Dosing of ferritin is the most reliable indicator reflecting emptying of iron stores in the bone marrow. Another diagnostic indicator is also dosing of soluble receptors of transferrin. In a normal subject the circulating concentration of receptors is rather low. Their concentration increases very much in iron deficiency anemia. In cases when ferritin is normal, this parameter is helpful in differential diagnosis of iron deficiency anemia with anemia of chronic disease.

Diagnosis of thalassemia minor often requires differential diagnosis with IDA. Thalassemia is presented as microcytic hypochromic anemia. Changes in peripheral part are similar to IDA and highly expressed in thalassemia major. In this case was added even the number of erythroblasts. Unlike IDA, in ferritin thalassemia, sideremia and saturation of transferrin with Fe result to be added. The diagnosis is confirmed only through electrophoretic or chromatographic examination of hemoglobin. Attention should be paid to the fact that in order to carry out electrophoretic examination, it is necessary to comply with the following conditions:

-Electrophoresis must be carried out when Hb→10g/dl

-Electrophoresis must be carried out following the sixth month of life. Only when the child must receive transfusion electrophoresis is carried out prior to the sixth month and is assessed in view of complexity of other data.

- Electrophoresis must be carried out at least 3 months after transfusion. This examination is not worth to the patients who have already been subject to transfusion. In such cases is recommended genetic examination.

ACD or anemia of chronic disease is, following IDA, the most common form of anemia noted at patients suffering from acute and chronic inflammatory disorders. In the pathophysiology of this anemia, concentration of hepcidin occupies the main place, which is associated with blocking of Fe within cells of reticuloendothelial system and lowering of intestinal absorption of Fe. Accordingly, the erythropoiesis rate is reduced and response to

erythropoietin is weakened. In this form of anemia ferritin and hepcidin in serum are usually at normal or high values, inflammatory cytokines are increased, while transferrin and its soluble receptors are found in lowered concentrations.

-Normocytic anemia. In this form of anemia, the main problem is rapid detection of cause and immediate medical treatment according to the cause. The main causes of this form of anemia are:

-Mixed nutritional deficiencies (deficiency of folic acid, vitamin B12 and iron)

-Acute blood loss

-Aplastic anemia (bone marrow insufficiency)

-Hemolytic anemia

-Anemia of chronic disease

A certain range of laboratory tests identify the presence of hemolysis (LDH, indirect bilirubin, haptoglobin, reticulocytes) or provide us with data on its origin:
-Intravascular hemolysis – schistocytes in peripheral blood smear
-Autoimmune hemolysis – Coombs test
-Electrovascular hemolysis – osmotic fragility test of erythrocytes
-Hemolysis caused by medication

Macrocytic anemia. Macrocytosis is often observed in response of automatic analyzers. Its prevalence is 1.7-3.9% but 60% of patients with macrocytosis do not result with anemia. In order to determine the cause of macrocytosis, at first, it is necessary to exclude the use of medications interfering with metabolism of nucleic acids, such as: hydroxyurea, methotrexate, etc, or use of alcohol.

In the absence of the above data, the most frequent cause of macrocytic anemia, is nutritional deficiency of vitamin B12 and/or folic acid.

Dosing of homocysteine in the bloodstream is an acceptable option to identify the intraerythrocytic status of folates.

ANEMIA (CHART, p. 73)

White blood cell count

Some disorders which cause modification of number and distribution of leukocytes among the population.
•Leukocytes (WWBC) are increased in infections and inflammatory situations.

•In leukemia, leukocytes might be high or low. Characteristic is the presence of immature cells in leukemia.

•Leukocytes might be found lowered in aplastic anemia, often induced by medications; in certain cases, unrecoverable even after interruption of medications.

•Leukocytes might be found lowered in hypoplastic anemia and are accompanied with recuperation after interruption of causative medication.

Neutrophils
•Are increased after administration of steroids.

•Are increased in inflammation caused by bacterial infection.

•In leukemia sometimes is found their addition, especially of those immature forms.

•Might be increased in situations of trauma, surgery, burns, haemorrhage, etc.

•Are decreased in viral infections, severe sepsis, hypersplenism and infections: brucellosis, typhoid, tuberculosis.

•Neutrophils might be reduced also due to nonproduction (impairment of bone marrow), in chronic inflammatory pathologies, such as rheumatoid arthritis or erythematosus lupus, etc.

Lymphocytes
•Are increased during viral infections, mononucleosis infection, but also during infections such as: brucellosis, syphilis, tuberculosis, toxoplasmosis, etc.

•Are increased after using steroids, in immune deficiencies as well as in chronic lymphoid leukemia.

•Are decreased in uraemia, erythematosus lupus, during therapy with steroids, in infiltration of bone marrow, in HIV, etc.

Eosinophils
•Are increased in asthmatic and allergic syndromes.

•Are increased in parasitological manifestations.

•Are increased also in other situations, such as: polyarteritis nodosa, cutaneous disease (eg. urticarie, eczema), after radiation, at the convalescent stage of infections, but even in malignant situations.

Monocytes
•Are increased in acute and chronic diseases, especially in brucellosis, tuberculosis, protozoan diseases.

•Might increase in malignant diseases, such as: acute myeloid leukemia M4 and M5, Hodgkin disease.

•Might increase in myelodysplastic syndromes.

Basophils
•Are increased in viral infections, urtikaria hypotyreos, post-splenectomy, chronic myeloid leukemia, in ulcerative colitis, in some malignant pathologies, haemolysis, etc.

Platelets
Some interpretations with regard to the number of platelets

Thrombocytopenia can be caused by:
•Reducing platelet production, as in: aplastic anemia, leukemia, myelofibrosis, tumoral invasion of bone marrow, viral infections, after radiation, in HIV, from chemical toxicity (eg. in chemotherapy, use of alcohol, toxins, etc.)

•Reducing of production can be due to the deficiency of vitamin B12 and folic acid

•Increase of destruction

•Through immune mechanisms, such as: alloimmune thrombocytopenia, secondary thrombocytopenia (after infections, in rheumatic and myeloproliferative diseases), immune thrombocytopenia induced by medications

•Through non-immune mechanisms, such as: disseminated intravascular coagulation, thrombocytopenic purpura, massive haemorrhages, extracorporeal circulation, as well as in patients with mechanical valvular prosthesis

•From splenic sequestration or portal hypertension.

Thrombocytosis
•Primary thrombocytosis, a proliferative disorder, which causes chronic increase of platelets; patients are at risk from haemorrhages (dysfunctional platelets) or thrombosis. Causes include:
-Primary thrombocythemia
-Polycythemia vera

-Chronic granulocytic leukemia
-Idiopathic myelofibrosis

•Secondary thrombocytosis – is reactive against situations, such as:

•Acute infectious and inflammatory disorders

•Chronic inflammatory disorders (eg. rheumatic diseases)

•Post-splenectomy or in splenic hypofunction/hypoperfusion

•Trauma, acute haemorrhages, anemia IDA

•Some malignant diseases, such as breast cancer, pulmonary cancer

•Some forms of leukemia (especially chronic ones)

COMPLETE URINALYSIS

Description of laboratory test and clinical values

"Complete urinalysis" is urine testing through rapid, accurate, reliable, safe procedures and with cost-efficiency. Complete urinalysis might include:

Macroscopic assessment (eg. color and transparency)
Physical measurements (eg. volume and specific gravity)
Chemical testing with strip or tablet reagents
And microscopic examination
Instructions on preparing the patient and collecting the urine sample
For carrying out the complete urinalysis, following instructions and cooperation with the patient, without supervision can be collected:
-Random urine sample
-First morning urine sample

The patients brings his urine sample (collected at home), at the healthcare center or in the laboratory for examination. If the distance fails to ensure examination within two hours after collection, it preferable to take a casual sample at the healthcare center.

Referring values (normal values)

These values should be revised following consultation with referring values proposed by the method applied depending on the sensitivity of the relevant method.

The analyte, physical values	Referring values
Color	Yellow
Cloudiness	Clear
Specific gravity (SG)	1.005-1.030
pH	5.0-8.0
Leukocytes (leukocyte esterase)	Negative
Nitritis	Negative
Protein	Negative
Glucose	Negative
Ketones	Negative
Bilirubin	Negative
Blood	Negative
Urobilinogen	0.2 – 1.0 mg/dL

Clinical Data

•Examination of urine with reagent strips constitutes a screening test that can be carried out in a fresh urine sample collected when he is presented for a routine checkup of his health at the healthcare center.

•In order to eliminate interferences, the patient is instructed in advance (or is sent written instructions) on sample collection method.

•The doctor and the nursing staff of the healthcare center acquire their power to carry out testing following training conducted by the medical staff of the laboratory.

•If the test results negative regarding the above physic-chemical parameters, no detailed microscopic examination is necessary.

•The microscopic examination is necessary in cases when:
-The results of the physic-chemical assessment are abnormal.
-In special cases, when the patient is presented with a clinical problem justifying further investigation. Such situations are: diabetes, pregnancy, genitourinary problems, urinary tract problems, presence of renal diseases or renal transplant, post-surgery urologic situation or cystoscopy, neurological vezica, spinal cord diseases or injuries.

•Tests of further examination include, in addition to microscopy, also microbiologic examination (urocultura) for exploring urinary tract infections.

Clinical interpretation of data

In this part, we are presenting briefly clinical interpretation for physic-chemical examination of urine with reagents strip.

Color – of urine varies greatly even to normal individuals. It is closely connected with urine concentration and normally varies from "no color", to bright yellow. Urine color can change due to pathological reasons, such as:

-presence of bile pigments and mioglobina (brown)
-presence of methemoglobina, bile pigments and melanin (dark in black)
-presence of infection with pseudomonas or of biliverdin (green in blue)
-presence of hematuria, hemoglobinuria, porfiria, myoglobinuria (red) etc.

Color changes can be caused even due to use of certain foods and medications (see the manual of reagent)

Cloudiness – Urine usually has transparent appearance. Cloudiness can be caused due to:

=contamination with vaginal mucous or epithelial cells
=presence of phosphate crystals, which precipitate in the alkaline urine (no clinical significance)
=secondary pyuria from infection
-Lipiduria
-secondary hyperuricosuria with a purine rich diet

Specific gravity – a diluted urine has SG$\leftarrow$1.005, while a concentrated urine has SG$\rightarrow$1.030.

-Increase of SG is found in dehydration situations, glycosuria, stenosis of renal artery, cardiac insufficiency, proteinuria, etc.
-Reduction of SG is found when we use abundant liquids, in renal insufficiency, pyelonephritis and also in insipid diabetes.

pH – it normally varies from 5-8. Urine usually appears in acid form, due to metabolic activity.

-Acid urine (lowered pH) can be caused by diet (eg. acid fruit), and uric acid stones.
-Urinary pH usually reflects the pH of blood, but in renal tubular acidosis this correlation is broken; in its distal form of pathology, urine is acid,

while blood is alkaline; in the proximal form urine is initially alkaline and is acidified in the course of the disease progress.
-Alkaline urine is found in initial stages of proximal renal tubular acidosis, and also in infections with organisms that cooperate with urease.

Hematuria – blood presence in urine
-This method draws no division between hematuria, hemoglobinuria or myoglobinuria; in all three cases the test results positive.
-If the test results positive, the absolute recommendation is microscopy.
-Attention should be paid to factors influencing in false positive or negative results.
Proteinuria – A normal adult excretes every day a certain amount of protein (albumin, globulin, proteins secreted by nefroni) from 80-150mg. This amount is not identified with classic test = negative protein. The limit of detecting protein in urine with reagents strip is → 200mg/L albumin.
-Proteinuria detectable in strip might be the first sign of a renovascular disease, glomerular or renal tubulointersticial.
-The strip test can identify only small amounts of Bence-Jones protein and gama globulins. In cases when their presence is suspected, the method used for identification are immunologic and electro-phoretic ones.
-The most reliable assessment, given that proteinuria is evident, is assessment of Protein/Creatine ratio in the 24 hour urine.
-Smaller amounts of protein in urine can be detected through specific test of micro-albuminuria; this test is important for early detection of minimal renal impairments and their monitoring, especially in diabetic patients.
Glucose – Normally, glucose is filtered by renal glomeruli and is reabsorbed completely at tubule level. In normal individuals it is not detected in urine.
-The test results positive in patients with diabetes, when the glucose in blood exceeds the renal threshold.
-Attention should be paid to factors influencing in false positive or negative results!
Ketones – normally are not found in urine
-The test detects presence of acetoacetate in the amount of 5 – 10 mg/L, but not acetone and beta-hydroxybutyrate.
-The positive test is found in diabetic patients inadequately controlled, during pregnancy and in absence of diabetes, poor diet in glucides and upon hunger situation.

- Attention should be paid to factors influencing in false positive or negative results!

Bilirubin and urobilinogen

-Unconjugated bilirubin is not found in urine (even when in blood it is high); in a normal individual bilirubin is negative

-In obstructive diseases of heparin, conjugated bilirubin returns to blood and appears in urine (it is soluble)

-Normally, in urine there is small amount of urobilinogen; however, its increase suggests assessment on presence of hemolytic or hepatocellular diseases

-Urobilinogen can be increased also in situations with high nitrites level.

Nitrites – the test enquires the degree of urinary nitrates conversion into nitrites; nitrites are not present in normal urine;

-The majority of gram negative bacteria and gram positive bacteria can carry out the above reaction, causing nitrites appear in urine.

-The positive test suggests presence of a large number of bacteria ($\rightarrow$ 10000/mL)

-The negative test does not exclude the probability of infection

-Strip reagent is highly sensitive to air exposure; a false positive result

-Negative false results can be received when period of urine presence in vezica has been less than 4 hours, due to poor diet in nitrates, in the presence of reductase nitrates microorganisms, such as mycobacterium, in pH$\leftarrow$6, in presence of urobilinogen and vitamin C, in urines with high SG.

Leukocyte esterase – the test assesses reaction of leukocyte esterase produced by neutrophils.

-The positive result suggests presence of pyuria and infection of urinary tract

-The slightly positive result should be assessed in order to be confirmed (repeat test, seek microscopy)

-Vaginal contamination might produce false positive result

-Attention should be paid to interferences in assessment of the relevant result!

FECAL OCCULT BLOOD TESTS

The aim of using iFOBT

The rapid immunologic test for assessment of blood in faeces (Immunochemical Fecal Occult Blood Test, iFOBT) constitutes an immunochemical test, carried out in qualitative assessment of blood in feces by the doctor, nursing staff or laboratory technician in the healthcare center or by the medical laboratory.

This test is important in detecting gastro-intestinal bleeding, which associate gastrointestinal disorders such as: diverticulitis, colitis, polyps and colorectal cancer.

The test is recommended to be used in:
•Patient's routine examination in healthcare centers or at the moment he is hospitalized.

•Hospital for monitoring patients with bleeding from gastro-intestinal system

•Screening of colorectal cancer and gastro-intestinal bleeding.

Biochemical Tests

SGOT/SGPT

Instructions on preparing the patient and drawing blood sample
The patient should be fasted
The patient should not consume food for 10-14 hours before blood is drawn. He is only allowed to drink water, if he is thirsty.

SGOT

Referring values (normal values)

These values should be revised following consultation with referring values proposed by the method applied

Serum	AST (GOT) IU/L
Females	10-33 IU/L
Males	10-33 IU/L

•Critical values (panic values)
We recommend as critical values to be reported, values of $\rightarrow$ 80 IU/L.

•Clinical Data

Aspartate aminotransferase (AST) or Glutamate Oxaloacetate Aminotransferase (GOT) are found in large amounts in cells of heart muscle, skeletal muscle, liver, kidney, red blood cells, etc.

•Clinical interpretation of data

Very important increase of ALT (more than 5-10 times beyond referring maximum values):
- Circulatory insufficiency associated with shock situation and hypoxia
- Myocardial infarction
- Acute viral or toxic hepatitis

Moderate increase of ALT (less than 5-fold of referring maximum values):
- Cirrhosis
- Mononucleosis
- Icter colestatic
- Malignant infiltration of the liver
- Skeletal muscle disease
- Extensive surgery or trauma
- Severe episodes of hemolysis
- Use of certain medications

Low levels of AST have no clinical significance, accordingly monitoring is not recommended.

SGPT

•Referring values (normal values)

These values should be revised following consultation with referring values proposed by the method applied

Serum	ALT (GPT) IU/L
Females	7-35 IU/L
Males	10-40 IU/L

•Critical values (panic values)
We recommend as critical values to be reported, values of → 90 IU/L.

•Clinical Data

Alanin aminotransferaza (ALT) or Glutamate Oxaloacetate Aminotransferase (GPT) are found in large amounts in cells of liver (mainly), skeletal muscle, kidney, heart, etc.

it is a typical test, which is used in assessing hepatic function.

•Clinical interpretation of data

Very important increase of ALT (more than 5-10 times of referring maximum values):
- Acute viral or toxic hepatitis
- Circulatory insufficiency associated with shock situation and hypoxia

Moderate increase of ALT (less than 5-fold of referring maximum values):
- Cirrhosis
- Icter colestatic
- Mononucleosis

- Secondary hepatic congestion as a result of congestive heart insufficiency.
- Surgery or extensive trauma of skeletal muscles
- Use of certain medications

Low levels of ALT have no clinical significance, accordingly monitoring is not recommended.

CLINICAL VALUES

Creatinine test is the most reliable assessment of renal function. Creatinine is an endogenous product, is produced with relatively constant speed, is filtered through kidneys, it is not re-absorbed from renal tubes. For these reasons, it used for assessment of clearance. Clearance is the amount of plasma cleared through kidneys by a substance at a time unit, which is expressed in ml/min. In order to determine the clearance is measured creatinine in serum and 24-hour urine. The correctness of urine collection is critical to the accuracy of assessing the creatinine clearance. Creatinine clearance is carried out pursuant to the following formula:

$CCr = UCr/PCr \times V$ in which:
UCr= concentration of creatinine in urine
PCr= concentration of creatinine in plasma
V= urinary volume per min (diuresis /1440)

The ratio S/1.73 is used to correct the clearance through body surface. This is very important especially for children. The normal values of creatinine clearance varies from 75 to 125 ml/min. Plasmatic concentration of creatinine and its clearance are used for assess the rate of glomerular filtration (GFR). There are formulas to assess GFR, such as: Cockroft and Gaudt, MDRD (refer to specialized texts).

Normal referring values of creatinine are given 0.72-1.18 mg/dl about men and 0.55-1.02 mg/dl about women. On normal values in every case reference should be made to the relevant kit and calibration used for measurement and assessment of creatinine. The extreme urinary of creatinine about men varies from 14-26 mg/kg/d and 10-20 mg/kg/d about women.

In cases when the value of creatinine is higher than the normal maximal value, the doctor should be alerted. In this case it is necessary to conduct a full examination of the patient for hidden renal diseases, diabetes, hypertension, etc.

UREA

Catabolism of protein (oxidative deamination of amino acids) as well as the purine cycle form ammonia. Ammonia is toxic especially for SNQ. Ammonia is converted into hepar by a number of enzymatic reactions known as the urea cycle. Urea (H2N-CO-NH2) is dissolved into water, is not toxic and is eliminated primarily through kidneys. About 75% of non-protein nitrogen in circulation and eliminated through kidneys is represented by urea nitrogen. Production of urea depends on diet; a high-protein diet increases the amount of urea already formed. Prolonged hunger and stress increase catabolism of protein and production of urea. 90% of urea is excreted through kidneys. The rest is eliminated through the gastro-intestinal apparatus and sweat. Urea diffuses easily, but it is not reabsorbed and secreted actively in the kidney. In a normal kidney, about 40 to 70% of filtered urea moves passively outside tubules towards interstitium and bloodstream. This diffusion depends on the speed of urinary flow, it enter less in interstitium in a state of high flow (eg. during pregnancy) and vice versa. Measuring of urea in serum has been used as an indicator of renal function, but measurement of creatinine provides good evidence on exploration of renal function.

CLINICAL VALUES

Extra renal numerous factors influence in concentration of urea in bloodstream, limiting its value as a reliable test of renal function. Concentration of urea is increased from a diet rich in protein and from increase of catabolism of protein, in gastro-intestinal haemorrhages, cortisone treatment. Dehydration and reduction of renal perfusion (eg. cardiac insufficiency) increase the concentration of urea. In post-renal obstructive pathologies creatinine and urea are increased where increase of urea is more expressed. The ratio urea/creatinine is used as an indicator

of pre-renal and post-renal azotemia. To an individual with normal diet the referring interval of this ratio is 12-20 mg urea/mg creatinine. This ratio is reduced in acute tubular necrosis, a diet poor in protein, prolonged hunger and serious hepatic diseases. Increase of urea/creatinine ratio is found in all pre-renal causes of urea increase. Clearance of urea is a poor indicator of GFR and for this reason clearance of urea is not used. BUN (blood urea nitrogen) terminology is used by several laboratories. BUN x 2.14 (60/28) gives urea concentration in mg/dl.

GLUCOSE

Referring values (normal values)

These values should be revised following consultation with referring values proposed by the method applied

Serum	Glucose Mg/dl	Glucose mmol/l
Fasting adult mmol/l	70-100 mg/dl	4.0-5.5

Critical values (Panic values)
Values lower than 50mg/dl and higher than 500mg/dl are considered as critical values for the patient. We recommend as values to be immediately reported, values →199 mg/dl (11.1 mmol/l).

Clinical data
Major pathology associated with disorder of carbohydrate metabolism is diabetes mellitus, which is characterized by insufficient production or activity of insulin in the blood. Symptoms of diabetes are poly-hunger, high level of glucose in blood and urine, marked thirst, constant hunger, weight loss, probable increase of ketones in blood and urine. Complications of diabetes constitute today the third cause of death in developed countries, such as USA. A part of patients with diabetes are undiagnosed, therefore their early detection constitutes an important step in improving their life and in preventing complications.

Clinical interpretation of data

Fasting glucose in blood (fasting plasma glucose test, FPG), is usually the first test recommended to detect a pre-diabetes situation or a hidden diabetes. This test is taken from a patient having at least 8 hours without eating.

Glucose two hour after meal in blood is measured after two hours, assessing this period at the moment you start to eat.

A randomized glucose in blood is estimated regardless of whether you are fed or not. To healthy people glucose in blood changes a little during the day. A major change of glucose in blood can hide a health problem that should be observed.

The glucose tolerance test (oral glucose tolerance test, OGTT), is used to detect a pre-diabetes and diabetes situation. This test provides a certain range of measuring the glucose in blood, at certain intervals, which are taken following administration of a certain amount of glucose already dissolved in water, administered by mouth. This test is of great value in the diagnosis of diabetes during pregnancy. This test is very important in the diagnosis of diabetes in general.

Hemoglobin glycosulated in blood (HbA1c) is measurement of glucose associated with erythrocyte hemoglobin. This test is of value in disgnosis of diabetes. In addition, it is of value in screening administration of diabetes over the last 2-3 months.

	Normal	Pre Diabetes	Diabetes
Fasting glucose	70-100 mg/dl	101-126 mg/dl	↗126 mg/dl mg/dl
Fasting Glucose mmol/l	4.0-5.6mmol/l	5.7-6.9 mmol/l	↗6.9 mmol/l

In order to set diagnosis on diabetes and pre-diabetes, based on other tests as well, refer to recommendations of the American Association of Diabetes, as follows:

	Normal	Pre Diabetes	Diabetes
Fasting glucose	70-100 mg/dl	101-126 mg/dl	↗126 mg/dl
HbA1c	↖ 5.7%	5.7% - 6.5 %	↗ 6.5 %
OGTT	↖ 140 mg/dl	140–200 mg/dl	↗ 200 mg/dl

Legend:
    A1c: Hemoglobin glycosulated in blood (HbA1C)
    FPG: Fasting glucose in blood
    OGTT: Glucose tolerance test

LIPIDOGRAMA

CHOLESTEROL
Cholesterol is found in all cells of our body, performing vital functions. It is precursor for the synthesis of vitamin D, steroid hormones and bile acids. It is a structural component of biological membranes. In the composition of membranes, it plays a structural and regulatory role for membrane fluidity. Cholesterol is taken exclusively from animal products. Rich in cholesterol are meat, eggs and sea products. With a balanced diet we take on average 300 to 450 mg of cholesterol.

Physiological variations can be several times higher than analytical error. It is recommended repeating several measurements to an individual at intervals of no less than one week, to assess average cholesterol concentration in this individual. The cholesterol value is increased with age, women have lower values than men. Seasonal variations are expected, and higher values are noticed in winter. To assess the cholesterol level to an individual, he should be at least two weeks before assessment on his habitual diet and not under weight loss regime. Some medications alter lipid levels, such as oral contraceptives, estrogens after menopause and antihypertensives. Thyroid, hepar and renal diseases alter the cholesterol level. Prolonged hunger, anticoagulants in venous obstructions, recent Acute Myocardial Infarction (IAM), cerebral insult, cardiac catheterization, trauma, acute infections and pregnancy affect significantly the cholesterol level.

It is recommended that measuring of cholesterol as a risk factor of CHD is conducted no earlier than 8 weeks after a trauma, stress mentioned above and 3-4 months after delivery. Cholesterol can be measured to non-fasting individuals, which facilitates screening and monitoring. The fasting state has little effect on cholesterol level. Position before drawing blood influences the cholesterol level and that of other lipids. The patient's position should be standardized. It is recommended (NCEP guidelines) that the person is at least 5 minutes sitting before drawing his blood sample.

REACTION TO CHOLESTEROL LEVEL
For every individual, cholesterol is measured in a non-fasting state.
Cholesterol in values 200 mg/dl: measuring is repeated each 5 years and

the individual is informed on viable risk factors for CHD.

Cholesterol in values 200 – 239 mg/dl: if there is no CHD and without two risk factors for CHD, then cholesterol measurement is repeated each year, the individual is informed on the diet and other risk factors for CHD. If the individual has CHD and/or plus two other risk factors for CHD, it should be passed into lipoprotein profile; in this case we refer to the value of LDL-cholesterol.

Cholesterol in values ↗ 240 mg/dl: it should be passed into lipoprotein profile.

[GRAPH, MEASUREMENT OF CHOLESTEROL, p. 91]

Algorithm of reaction to total cholesterol

TRIGLYCERIDES

Triglycerides (TG) are esters of glycerol with three highly fatty acids (ALY). They constitute about 95% of the mass of adipose tissue. They are the main form of depositing ALY into adipose tissue. In the situation of initial hunger and hunger ALY is mobilized from TG of adipose tissue. After jumping into blood, ALY, complexed to albumin, circulate in bloodstream and are seized by tissues, except brain, to be used as energetic material. Food TG in the duodenum and proximal part of ilium are broken down by pancreatic lipase in the presence of bile acids in glycerol, monoacylglycerol and ALY, which are absorbed. In enterocyte, driven by absorption products, triglycerides are re-synthesized. Intestinal epithelial cells (enterocyte) make also de novo synthesis of TG, fosfolipidos and specific apoprotein (Apo B48). These compounds, along with cholesterol are organized in kilomikron. Kilomikron represents the main form through which lipids of food origin circulate in blood.

The recent meta-analysis according to ATP III identifies TG as an independent risk factor for CHD. Risk factors associated with hypertriglyceridemia are: physical inactivity, smoking, excessive alcohol use, obesity, diet rich in carbohydrates, diabetes type II, chronic renal insufficiency, nephrotic syndrome. Some medications, such as kortikosteroider, estrogens, retinoids and higher doses of   –blockers, increase triglycerides. To a person with hypertriglyceridemia, the aim of therapy is directed against LDL-Cholesterol (LDl-C). Additional physical activity, weight loss as well

as employment of preparations that reduce TG (nicotinic acid and fibrates) provide good results.

DETERMINATION OF TG AND CLINICAL VALUE

TG in plasma includes TG of VLDL and remnants of lipoprotein. The value of TG ↖ 150 mg/dl is considered normal value, value 150 – 199 is considered high threshold value, value 200 – 499 is considered high value and value above 500 mg/dl is considered very high value.

REACTION TO THE VALUE OF TRIGLYCERIDES

TG is determined in routine analyses and for check-up purposes. TG in fasting state ↗
200 mg/dl is considered as risk factor for CHD.

TG in fasting state ← 150 mg/dl: No further actions are required related to TG.

TG in fasting state 150 – 199 mg/dl: Recommended lifestyle changes, for therapeutic purpose (TLC).

TG in fasting state 200 – 499 mg/dl: TLC and optional medications therapy.

LIPOPROTEIN PROFILE

TG in fasting state → 500 mg/dl: In this case there is also the risk of pancreatitis. Intervention and monitoring should be rapid. It is recommended diet very poor in lipids and medications that reduce triglycerides. Interpretation of TG, however, should be made subject to lipoprotein profile.

(GRAPH, LIPOPROTEINIC PROFILE, p. 94)

LDL (LOW DENSITY LIPOPROTEINS)

LDLs are formed in circulation from VLDL (very low density lipoproteins).

VLDLs are synthesized into hepar from cholesterol, triglycerides, phospholipids and apoprotein, mainly Apo B100. VLDLs are rich also in other proteins (Apo C, Apo E). VLDLs are forms through which lipids are removed from hepar. Factors that restrain synthesis or VLDL removal from hepar lead to hepatic steatosis. Deficit of ALY essential, choline, alcohol and chemical substances are factors that lead to hepatic steatosis. VLDLs in circulation take from additional HDLs Apo CII and Apo E. LPL operates on CII as well as on chylomicrons. Apo CII is a physiological activator of LPLs. About 55% of the mass of VLDL consists of endogenous triglycerides. LPL hydrolyzes TG of VLDLs with a significantly lower speed compared with TG of chylomicrons. Following APLs action on VLDLs they are reduced and become denser. Apo CII and Apo E (a part of it) return to HDLs. The only Apo that is not exchanged between lipoprotein classes is Apo B100. This is relevant to the structure of this protein (Apo B100 is the only polypeptide range consisting of 4500 amino acids) and high affinity for lipids. VLDLs are depleted into TG and transformed into IDL (intermediate density lipoproteins). Through hepatic receptors Apo B/E IDLs are seized by hepar (about 50% of them). The esterified cholesterol passes from HDLs in exchanges for TG to IDLs through a protein that transfers cholesterol esters (CEPT). In this way IDLs are transformed into LDLs rich in cholesterol and with a few TG. LDL have very little Apo B100. About 60-70% of cholesterol circulates along the content of LDLs. The main way through which LDLs are removed from circulation is the receptorial one. LDLs take a much longer time of circulation in bloodstream than VLDLs chylomicrons, with an average of 3 days. The specific receptor in the cells plasmatic membrane is linked with LDLs through Apo B100. LDLs are internalized and inside the cell are degraded from lysosomal enzymes. Receptors are recycled by returning into plasmatic membrane, are recycled about 100 times, Apo B100 is hydrolyzed into amino acids; esterified cholesterol is hydrolyzed into cholesterol and ALY. Hepatic and extrahepatic cells are thus supplied with cholesterol. Defects of LDLs receptor lead to increase of LDLs in circulation, already expressed with increase of cholesterol. LDLs cholesterol is esterified (linked) with ALY essential (linoleic and linolenic acid), which are easily oxidized, particularly when LDLs stay longer in circulation. About 1/3 of LDLs are seized in non receptorial manner from macrophages. The receptorial way of seizing LDLs is adjustable, while that non-receptorial is not adjustable;

macrophages swallow LDLs and fill with cholesterol thus being converted into foam cells and leading to the formation of atheromatous plaque as the initial event of atherosclerosis.

Familial hypercholesterolemia is a dominant autosomal disorder caused by mutations in the receptor gene of LDLs, localized on chromosome 19. Mutations affect the receptor synthesis, receptor transportation (recycling) or its functioning. This genetic heterogeneity leads to different clinical situations. Heterozygote forms are found in 1 in 500 individuals and appear in the IV decade of life; 10-15 years later in women. The cholesterol level is 220 mg/dl. Homozygote forms are very rarely found and appear since childhood period with a cholesterol level of $\rightarrow$ 400 mg/dl, which is associated with early development of CHD. In heterozygote forms of familial hypercholesterolemia, statins usually produce good effect in lowering cholesterol, but normalization of cholesterol is not achieved to all individuals, despite maximum doses of statins. In homozygote form, statins are not effective.

Genetic defect of Apo B100 is another dominant autosomal disorder with a frequency 1 in 750 individuals. Defective Apo B100 is not known by LDLs receptors. Phenotype is similar with familial hypercholesterolemia caused from the receptor defect of Apo B100, usually cholesterol is lower and statins are effective.

Non-familial polygenic hypercholesterolemia is a generic term used to describe individuals to whom the cause of hypercholesterolemia is multi-factorial. Some of the factors can be genetic, excluding secondary and dominant autosomal hypercholesterolemia.

Familial hyperlipidemia combined with frequent disorder, is found in 1 in 100 individuals. Individuals have high cholesterol and triglycerides. Lipoprotein profile can change over the time to the same individual and phenotypically varies among family members. In all cases Apo B100 is high, lipid-protein ratio is lowered, VLDLs and LDLs become smaller and denser being very atherogenic. 10-15% of patients with premature CHD have combined familial hyperlipidemia. Molecular defect of this disorder is not known. LDL-cholesterol is about 190 mg/dl, but it is lower

than in familial hypercholesterolemia. TGs vary from 200-400 mg/dl, concentration of HDL-cholesterol is usually low, which is in relation to TG concentration.

Dysbetalipoproteinemia is a disorder caused by a genetic defect in removing remnants of chylomicrons and VLDLs. Apo E, which is present in the surface of these remnants, is linked with relevant specific receptors in hepatocytes by facilitating thus removal of these particles from circulation. Mutations of Apo E or genotype E2 reduce the efficiency of removing remnants through receptorial way. Remnants are rich in cholesterol. They grow in bloodstream, cholesterol and TG in the same ratio between them.

DETERMINATION OF LDL-CHOLESTEROL

The Friedewald formula is widely used by laboratories for assessing LDL-cholesterol. In this case is measured total cholesterol, HDL-cholesterol and TG.

LDL-cholesterol = KT - HDL-C - TG/5. The ratio TG/5 assesses cholesterol of VLDLs. Assessment of LDL-cholesterol according to Friedewald formula correlates well with assessment method based on ultracentrifugation. This assessment has its own limitations. TG/Chol ratio in VLDLs can change in various forms of hiperlipoproteinemia. This method is accurate for TG ↖ 200mg/dl. For values varying from 200-400, precision is highly lowered and for values of TG ↗ 400 mg/dl it cannot be applied. In cases when TG concentration is high, values achieve underestimation of LDL-cholesterol.

In several forms of hiperlipoproteinemia (dysbetalipoproteinemia) TG/Chol ratio is not 5:1 but 3:1, leading thus to overestimation of LDL-cholesterol. It should be noted that in 90% of fasting-state checkups of lipids, TG concentration is ← 300 mg/dl. Chylomicron presence in non-fasting state samples interferes with assessment of LDL-cholesterol according to the above formula.

REACTION TO LDL-CHOLESTEROL ASSESSMENT

Based on total cholesterol value, is performed the measurement of non-fasting state lipoprotein profile, where is determined LDL-cholesterol. LDL-C → 160 mg /dl is a high risk factor for CHD. According to classification, ATP III LDL-C ←100 mg/dl is considered optimal. Values 100-129 are considered values near or above optimal value. Values 130-159 mg/dl are high threshold values. Values 160-189 are considered high ones and above 190 mg/dl are considered very high values.
Purposes of LDL- cholesterol and cut point for TCL as well as medicament therapy for different risk categories are as follows:

Risk category Purpose
Mg/dl LDL – C level in which starts TLC   LDL – C level in which medicament therapy can start
CHD or equivalent risk for CHD   ←100 ↗100 →130,   100-129 (optional)
2 or more risk factors for CHD   ←130 →130 ↗160
Risk factor 0-1←160 →160 ↗190

 (GRAPH, LIPOPROTEIN PROFILE, p. 99)

Algorithm of reaction to LDL-cholesterol in individuals with high cholesterol or high threshold

HDL (HIGH DENSITY LIPOPROTEINS)

The reverse transport of cholesterol helps the body to maintain homeostasis of cholesterol. This transport removes the excess of cholesterol from peripheral cells and releases it into hepar to be eliminated. This reverse transport is mainly mediated from HDLs. HDLs are mainly synthesized into hepar and partially in intestine. HDLs are also formed in circulation, by merging Apo A1 with phospholipids, triglycerides transferred from lipoproteins rich in triglycerides.

REACTION TO HDL-CHOLESTEROL ASSESSMENT

Based on classification of ATP III, HDL-cholesterol ←40 mg/dl is considered low and HDL-cholesterol → 60 mg/dl is considered high. HDL-cholesterol is a protective factor against CHD. Regular physical activity, regular small doses of alcohol increase the HDL-cholesterol level. Physical inactivity, overweight and smoking, lowers HDL-cholesterol level. Women up to the age of 60 years old because of estrogens have a higher level of HDL-cholesterol. HDL-cholesterol value of ←40 mg/dl is a risk factor for CHD for men and value ←45 mg/dl is a risk factor for CHD for women.

(GRAPH, MEASUREMENT OF MON-FASTING TG AND HDL, p. 101)
Algorithm of assessing risk factor for CHD, treatment and monitoring according to ATP III based on TG and HDL-cholesterol in non-fasting state. ATP III NCEP Adult Treatment Panel III guidelines.

MEDICATIONS USED TO TREAT STATINS LIPOPROTEINEMIA:

Primary effect: Lower LDL-Cholesterol (20-60%)
Secondary actions: Lower, but a little, TG and modestly increase
                                 HDL-Cholesterol
Mechanism of action: Restrain HMG-CoA reductase
Side effects: GI disorders, hepatic impairments, rhabdomyolysis
Examples: Lovastatin, Simvastatin, Pravastatin, Fluvastatin,
                                 Atorvastatin

DERIVATES OF FIBRIC ACID
Primary effect: Lower TG (20-25%)
Secondary actions: Slightly increase of HDL-Cholesterol
Mechanism of action: Lower HDLs catabolism, increase LPLs

action
restrain hepatic synthesis of VLDLs
Side effects: Gastrointestinal disorders, favor formation of
biliary stones, increase warfarin effect
Examples: Gemfibrozil, fenofibrate

BILE ACID RESINS
Primary effect: Lower LDL-Cholesterol (10-20%)
Mechanism of action: Link biliary acids in intestines increasing their
excretion
Side effects: Gastrointestinal disorders
Examples: Cholestyramine, colestipol, colosevelam

NIACIN
Primary effect: Lower triglycerides (20-50%), increases HDL-Cholesterol
more than any preparation
Mechanism of action: Restrain ALY mobilization from adipocytes through
receptor coupled with protein G
Side effects: Gastrointestinal disorders, cutaneous vasotomor disorders,
hepatic impairments, increase of glucose.

(GRAPH, CHOLESTEROL AND MANAGEMENT OF LIPIDS TO THE ADULTS WITH KV RISK, p. 103)

a KV risk equivalents have similar risk for vascular accidents, to that of SKV and include diabetes, other clinical forms of sem (scanning electron microscopy) atherosclerotic (sem of carotid arteries, peripheral arteries aneurysm of abdominal aorta).

b Age (men →45 years old, women →55 years old or postmenopausal) HTA (TA → 140/90 mm Hg), Smoking, HDL ← 40 mg/dl, history for early SKV.

c h1h Reduce fats in a diet, cholesterol, increase physical activity and reduce body weight. Reassess lipidograma after 3 months.

d Response to medical treatment should be assessed every 6 weeks in order to check whether the targeted LDL is achieved.

e Adding fibrates or nicotinic acid is an opportunity if there are increased TG or lowered HDL.

CHAPTER 6

CARDIOVASCULAR DISEASES

Subtopics:

- Priorities of cardiovascular risk assessment

- Nursing procedures for performing ECG

- Elements of ECG analysis

This guideline aims at helping doctors and other healthcare professionals to fulfill their role in promoting cardiovascular health and preventing cardiovascular diseases, especially in their task to achieve effective prevention steps in the daily clinical practice.
It is shown that modifications of risk factors reduce SVK mortality and morbidity, especially in high-risk patients.

Why should we develop a preventive strategy in clinical practice?

1. Cardiovascular diseases are the major cause of premature death in Europe. They are an important cause of disability and contribute to the increasing cost of healthcare.

2. Atherosclerosis develops slowly, without being disclosed, over many years and usually, at the moment symptoms appear, it has advanced.

3. Death from SKV often occur unexpectedly and before offering medical assistance, therefore many therapeutic interventions are either inapplicable or simply palliative.

4. Increased incidence of SKV is closely related with lifestyle and biochemical and physiological modifiable factors.

5. Cardiovascular diseases are the major cause of premature death in Europe. They are an important cause of disability and contribute to the increasing cost of healthcare.

What are the objectives of this clinical guideline?

1. To help healthcare professionals in reducing incidence of coronary arteries diseases, insult and peripheral arteries diseases along with their complications.

2. This should be achieved by providing practical and comprehensible advice with regard to prevention, importance, objectives, assessment and management of risk by way of steps taken on lifestyle and use of selected

medications.

Priorities, general risk assessment and objectives

-What are priorities in preventing SKVs in clinical practice?
-Whom is prevention of SKVs addressed to?

(1) To patients with confirmed atherosclerotic cardiovascular diseases.

(2) Asymptomatic individuals who are at additional risk for SKV because of:
    2.1 Multiple risk factors resulting in total risk for increased SKV (10-year risk for deaths from SKV ↗ 5%).
    2.2   Diabetes type II and type I with microalbuminuria.
    2.3   Very high single risk factor, particularly if associated with last degree impairment of an organ.
(3)   To relatives of subjects with premature atherosclerotic SKV or to those with especially high risk.
-
What are objectives for preventing SKVs?

(1)   To support low-risk individuals in order to keep this situation constant and help high total risk individuals for SKV, so as to reduce it.

(2)   To complete these characteristics to people who tend to be plump;
    2.1 No smoking
    2.2 Healthy food
    2.3 Physical activity: moderate activity for 30 minutes a day
    2.4 BMI ←25 kg/m2 and avoidance of central obesity
    2.5 TA ← 140/90 mm Hg
    2.6 Total cholesterol ← 190 mg/dl
    2.7 LDL-cholesterol ← 115 mg/dl
    2.8 Glycaemia ← 110 mg/dl,

(3)   To achieve stricter control of risk factors to high-risk subjects, especially to those with confirmed SKV or diabetes.
    1.   TA ←130 mmHg, if possible,

2.   Total Cholesterol ← 175 mg/dl, preferably ← 155 mg/dl, if possible,
3.   LDL cholesterol ← 100 mg/dl, me preferably ← 80 mg/dl, if possible,
4.   Glycaemia in fasting state ← 110 mg/dl and HbA1c ←6.5 %, if possible.

(4)   To consider cardioprotective medicament therapy to these high-risk subjects, especially those with confirmed SKV.

-When should cardiovascular risk be assessed?
(1) If during the consultation:
    a. The person is a middle age smoker;
    b. The person has obesity, particularly abdominal one;
     c. One of the risk factors, such as arterial blood pressure, lipids or glycaemia is high;
    d. The person has a family history for premature SKV or for other risk factors;
     e. The person has symptoms suggesting SKV. If confirmed, it is necessary to assess risk factors, SCORE table but is not necessary, since the patient is already at high risk.

-Why emphasis is put on total risk assessment for SKV?

(1)   Multiple risk assessment usually contributes to atherosclerosis;
(2)   These risk factors cooperate, sometimes in multiple manner;
(3)   The aim should be total risk reduction; if the target is not achieved through a risk factor, total risk can be reduced by trying more with others.

-How to assess SKV risk quickly and easily?
(1)   Those persons with:
-Recognized SKV;
-Diabetes type II or type I with microalbuminuria;
-Very high levels of individual risk factors which are already included into HIGH RISK for SKV and need management of all risk factors.

(2)   For all other people can be used SCORE risk table to assess total

risk. This is very important because many people with averagely increased levels of several risk factors, might result in combination at very high total risk levels.

(TABELA, SYSTOLIC BLOOD PRESSURE, p. 109)

SCORE table: 10-year risk for fatal SKV in the high risk population based on the following risk factors: age, gender, smoking, systolic blood pressure and arterial cholesterol.

Cardiovascular risk assessment: what are components?

(1)   History: Previous SKV or similar diseases, family history for premature SKV, smoking, physical activity and dietetic habits, social-economic situation.

(2)   Examination: TA, cardiac frequency, cardiac and respiratory auscultation, pulsations, height, weight, IMT (body mass index), waist circumference and in heavy HTA in fundoscopy.

(3)   Laboratory studies: urine for glucose and protein, microalbuminuria to diabetics, cholesterol and lipids in fasting state (LDL and HDL-cholesterol, triglycerides), glycaemia, creatinine.

(4)   ECG and PU-ECG, if suspected of angina pectoris.

(5)   ECG and echocardiogram to hypertensive persons.

(6)   In cases of premature or aggressive SKV, particularly in patients with family history of premature SKV, take into consideration PCR, lipoprotein, fibrinogen, homocysteine, if possible.

How to manage the components of total risk for SKV?

(1)   The patient and doctor agree that risk assessment is indicated and the patient should be informed that the result can lead to suggestions related to the change of lifestyle and opportunity for treatment over a lifetime.

(2)   It takes time and resources to discuss and follow advice and treatment.

(3)   The doctor should take into consideration and also respect patient's values and choices.

Management of total risk for SKV: a key message

(1)   Managing of specific risk components, such as smoking, diet, physical activity, blood pressure and lipids affect the total risk.

(2)   Accordingly, if a perfect control of risk factor is difficult (eg. control of blood pressure among the elderly), total risk might be reduced by reducing

other factors, such as smoking or plasmatic cholesterol.

When should I assess total risk for SKV?

If during consultation:
•the person is a middle age smoker;

•if it is known for one or more risk factors (such as HTA, or cholesterol increase);

•has a family history for premature SKV, or for major risk factors; suggestive symptoms for SKV.
Risk assessment: What should I do?
Use SCORE table if there are no known SKV, diabetes, very high single risk factors

•History: Previous diseases, family history for premature SKV, smoking, dietetic habits and physical activity;

•TA, cardiac frequency, cardiac and respiratory auscultation, peripheral pulsations, height, weight (BMI), waist circumference.

•Laboratory tests: urine for glucose and protein;

•microalbuminuria to diabetics, cholesterol and lipids in fasting state (LDL and HDL-cholesterol, triglycerides), glycaemia, creatinine;

•ECG and PU-ECG, if suspected of angina pectoris;

•ECG and echocardiogram to hypertensive persons;
In cases of premature or aggressive SKV, particularly in patients with

family history of premature SKV, take into consideration PCR, lipoprotein, fibrinogen, homocysteine, if possible.

Confirmed   DM-1, DM-2   too increased   risk SCORE
risk SCORE
   SKV   microalbuminuria   single FR   ↗ 5%
← 5%

Recommendations on lifestyle:
•No smoking;

•Reduction of body weight if BMI ↗ 25 kg/m2 and especially if it is 30/m2

•Non-increase of body weight if abdominal circumference is 80-88 cm for women and 94-102 for men. Advice for weight loss if PA ↗ 88 cm for women and ↗ 102 cm for men.

•Moderate physical activity for 30 minutes a day and for most of the weekdays. Physical exercises and weight reduction can prevent diabetes.

•Healthy diet:
- variety;
- such calories as to avoid overweight;
- take fruit, vegetables, cereals, fish, free-fat meat,   little-fat products;
- substitution of saturated fats with polo and mono unsaturated fats;
- hypertensive subjects should limit consumption of salts.

Medicament treatment (to a specialist doctor):
When risk is above 5% and especially above 10%, or if there is impairment of organs. For the elderly, usually medicament treatment is not recommended below the risk of 10% except cases when there is a specific indication.
Consider antihypertensive medications when TA ↗ 140/90 mmHg.
Consider statins when total cholesterol ↗ 200, or LDL ↗ 100.
For patients with SKV: aspirin, statins for the most part.
For patients with diabetes: consider hipoglicemiantes.

Advice on lifestyle to maintain the status at a low risk.
Periodic reassessment of total risk

NURSING PROCEDURES SUBJECT TO CONTROL PACKAGE ELECTROCARDIOGRAM (ECG)

This common examination will be performed by the nurse already trained to provide Periodic Control Package service and registrations will be interpreted by MP/F.

For this reason we will give some basic knowledge about the method, value and manner of performing this examination.

-Electrocardiography is exclusively used to measure heart performance through an apparatus called Electrocardiograph. Graphic presentation of the electrical activity of the heart and recorded in a squared sheet is called electrocardiogram. Graphically, a normal copy is made up of every heartbeat, where are identified three waves: the positive wave, is directed above the base line, called iso-electrical and two negative waves, directed more downward. Interpreting the derived data we might receive important information on heart health.

-Registration of electrocardiogram strip is made through electrodes, which are placed in the chest and extremities according to the specified order. The strip with the written graph shows the heart activity.

-How to conduct examination

Before conducting this examination, the nurse accommodates the patient in a lying position, allows him to rest and relax for at least 5 minutes, informing him on the procedure and its benefits, in order to release him from anxiety and fear and get the heart to its normal working rhythm.

-Order and manner of placing the electrodes is very specific and generally defined in the manuals of using ECG apparatus. Electrodes have different colors depending on the position of placement: red, blue, green, yellow, etc. It is important that the nurse know well the order of placement and manner of fixing wristbands were electrodes are fixed. The nurse takes care that the cutaneous surface where wristbands and electrodes are placed, to be well cleaned and moistened with a little water in order that low frequency electricity generated by the heart muscle to be transmitted

and recorded as well as possible.

After fixing electrodes, the nurse starts recording by switching on the apparatus and changing the position on the required segments and positions. In medical practice, recording of waves and inter-waves represents a common, economic and practical analysis to observe whether electrical activity is normal or whether it presents pathologies of both mechanical and biochemical type of the heart. The recorded graph has a characteristic form, therefore every change is connected with a patient's cardiac problem.

-Method for performing ECG

- A total of 10 electrodes are placed on the patient.
-4 electrodes are placed on the limbs for standard bipolar links D1, D2, D3 and for unipolar links aVL, aVR and aVF.
-6 electrodes are placed on the chest for precordial links V 1-6
-V1 – the 4th right sterna margo intercostal space
-V2 – the 4th left sterna margo intercostal space
- (to find the 4th space is palpated the angle of Luis manubriosternal)
- Immediately on sideways is the 2nd rib, below is the 2nd intercostal space. It is palpated further below to find the 3rd and 4th space
- V4 on apex (the 5th space linea mid-clavicular)
- V3 between V2 and V4
- V5 on the same level with V4, but on the linea axilar anterior
- V6 on the same level with V4 and V5, but on the linea mid-axilar

•The apparatus is calibrated with amplitude 10 mm/mV and speed 25 mm/s.

Upon completion of the recording procedure, the nurse removes wristbands and electrodes from the patient's body and in necessary helps him to dress and get out of the visiting bed. The nurse disconnects the diagram strip derived from the apparatus and completes on its back notes about the required personal data, date as well as the time of performing s% the relevant examination. This is attached to other reports obtained from checkup, to forward to the Family Physician. The Admission Nurse makes no interpretation of ECG, and is not allowed to provide any information to the patient as to the ECG outcome.

ECG OF A NORMAL SINUZAL RHYTHM

What are the benefits?
Electrocardiogram is the most common,
fast, safe and free through which you
can receive more information about the
heart health of a certain person.

Risks
None. The only risk is that while the
electrocardiogram detects cardiac activity
for some seconds, it cannot identify diseases
that appear occasionally, such as arrhythmia.
In such cases it can be appropriate to use a
dynamic ECG Holter, which is fixed and easily
kept in the body to enable recording of cardiac
activity for 24-48 hours.

•The limbs joints assess electrical cardiac events from six angles on the
frontal or vertical plane.

Electrophysiology
•Pacemaker = sinoatrial node
•Impulse passes along the atriums
•Reaches node AV
•Is transmitted during interventricular septum in the His Bundle
•The His Bundle is divided into two parts (the right and the left bundle)
•Purkinje Fibers

Elements of ECG analysis

P Wave
        Shows depolarization of atrium from the right atrium to the left one. Normal   duration: less than 0.12 sec.

Q – R – S Wave
Q: Initial negative deflexion of ventricular depolarization (represents depolarization of septum i/v)
R: The first positive deflexion of ventricular depolarization (of the Ventricle free wall)
S: Negative deflexion after wave R of the ventricle depolarization (its basic part)

QRS Complex
          Shows ventricular depolarization. Duration reflects the timing of intraventricular conduction;
        Duration: less than 0.11 seconds

T Wave
        Deflexion created by ventricular repolarization

U Wave
          Deflexion that follows T wave shows repolarization of intramural system of Purkinje conduction

ST Segment
        The isoelectric period between the end of S wave and beginning of T wave
        Shows the initial part of myocardial repolarization

QT Interval
•Shows duration of all electrical systole

•Is measured from the beginning of QRS up to the end of T. It measures refractory period during which myocardium does not respond to a second impulse;

Q-T interval should be less than half of preceding R-R interval.

PR interval
    Measures timing of AV conduction
    Is measured from the beginning of P up to the beginning of QRS complex
    Normal value: 0.12-0.20 sec
    Duration is indirectly linked with FC

Interpretation of ECG
Cardiac Frequency
•If cardiac frequency is regular (equal RR);

•Count the number of ECG big squares between R waves;

•RR interval has 4 big squares;

•Cardiac Frequency = 300/RR eg. RR = 4;

•300/4 = 75 heart rate/min;

•If rhythm is irregular, it is better to use the entire ECG of 250 cm (10 seconds);

•R waves are counted and multiplied by 6 thus acquiring FC;

•Or R waves of 30 squares are counted and multiplied by 10 = FC.

Cardiac rhythm

•Normal sinus rhythm: cardiac rhythm starting from primary natural pacemaker (sinoatrial node);

•Sinus rhythm is diagnosed only if five criteria are present:
    P wave of sinus origin;
    P-R interval is normal and constant (0.12 – 0.20 sec);
    P wave with the same morphology in a certain connection;
    Cardiac frequency (60-100 rr/min);

P-P interval (or R-R one) is constant.

Heart axis
•Heart axis is the sum of all directions, cardiac impulses or waves of heart depolarization;
1. The mean QRS axis is towards connection with highest R (or the average between two connections with R of equal height);
2. The mean QRS axis is directed perpendicular (900) with any connection of biphasic complex (equal R-S);
3. The sum of vectors D1 + D3 in the Einthoven triangular.

AV Block
Of 1st degree
    PR is constant, →0.2 seconds
Of 2nd degree, type 1 (Wenckebach)
   PR is extended in subsequent rates until QRS is lacking (is not conveyed)
Of 2nd degree, type 2
    PR is constant and then QRS is lacking
Of 3d degree
    P waves and QRS complexes are independent. There is no connection between them.

Bundle branch block

Left bundle branch block (LBB)

•If the left bundle branch block is present, QRS complex might appear in the form of 'W' V1 and/or 'M' (rSR') in V6.

•QRS interval →0.12 sec.

Right bundle branch block (RBB)

•If the left bundle branch block is present, QRS complex might appear in the form of 'W' V1 and/or 'M' (rSR`) in V6.
•
Intervali QRS →0.12 sec.

Repolarization disorders
•Ischemia is a reversible lesion and appears with alternated T waves (high or inverted – negative T wave) (subendocardial/subepicardial ischemia);

•Myocardial damage is a reversible lesion and appears with alternations (decrease/increase) (subendocardial/subepicardial damage);

•Infarction (necrosis) provokes irreversible lesion and is characterized by appearance of Q wave and QRS complex alteration (no Q wave infarction, brings no changes to QRS complex).

Other causes of repolarization disorders are pericarditis, electrolytic disorders (hipo-hiperkalemia), rhythm and conduction disorders, as well as heart chambers dilatation and hypertrophy.

Hypertrophy
•Left ventricle hypertrophy

•Is characterized by increased electrical force of VM. It is demonstrated with high R waves in V5-6 and deep S waves in V1;
-R waves in V5-6 26 mm or more
-R waves 5-6 + S1 = 35MM, etc.
-Negative or biphasic T waves

•Right ventricle hypertrophy

•Is characterized by increased electrical force to the right. It is demonstrated with high R waves in V1, with heart axis right diversion.
- High R waves in V1 or incomplete BDD

-Deep S waves in I aVL and V4-6, etc.
-Negative T waves in V1-3

Instances of ECG

•Sinus rhythm = normal

•Atrial fibrillation

•Atrial tachycardia

•Ventricular tachycardia

•BAV gr 2 type 2

•BAV gr 3

•Left bundle branch block

•Right bundle branch block

•IM anterior

•IM inferior

Ways of analyzing ECG

•Computer program for the exclusion of normal ECG and analyzing only abnormal ECG

•Analyzing each ECG by cardiologists (trainees) after collection of ECGs at the relevant center.

CHAPTER 7

Lifestyle Factors

•Assessment and advice on lifestyle factors.

•Ethics and communication with the patient.

•Primary care on use of alcohol and tobacco, the screening test.

•Brief interventions for impairments caused by the use of alcohol and tobacco.

•Primary care and advice on the nutrition quality.

•Primary care and advice on physical activity.

•Appendix A: The screening test on the use of tobacco and alcohol.

•Appendix B: Risk assessment.

•Appendix C: The final report card for citizens.

ASSESSMENT AND ADVICE ON LIFESTYLE FACTORS

•To know principles of communication ethics with the patient at the Healthcare Center.

•To know techniques of assessment and advice on factors regarding the patient's lifestyle.

•To inform and raise awareness to the patient on procedures and importance of periodical primary care.

•To use correctly assessment questions addressed to the patient regarding smoking, nutrition, use of alcohol and physical activity.

•To interpret accurately the patient's responses and assess/classify them according to the level of health risk.

•To advise and encourage patients towards a healthy lifestyle, according to the risk level in which the patient is classified.

•Nurses should refer or cooperate with the doctor of the healthcare center in cases when patients are classified at high risk levels. Doctors should monitor and constantly support implementation of procedures related to periodical primary care, particularly in difficult cases.

•To cooperate with the patient's relatives/family members in relation to the advice on the factors of lifestyles in difficult cases (very high risk or persistency in the lifestyle change).

•In the case of overuse of alcohol to refer the patient to the specialized clinic at the QSUT (Tirana University Healthcare Center).

ETHICS AND COMMUNICATION WITH THE PATIENT

Medical staff – patient interaction constitutes a corner stone of medical practice and ethics. The patient's health should be the primary concern for the medical staff. Below are presented some recommendations for a more effective interaction between the doctor/nursery of primary care as well as the patient, which should be taken into account during the process of medical primary care.

•Respect and treat every patient equally! The sincere concern related to the patient's problems constitutes a fundamental value of medicine and constitutes the basis of good interaction between the medical staff and the patients, thus increasing the chances for a successful treatment.

•Guarantee to your patients the proper privacy and confidentiality they deserve!

•Listen the patient attentively, concentrate on what he expresses verbally and non-verbally;

•Identify his weak and strong points in relation to his disease, which subsequently help in changing the dangerous behavior!

•Accept the patient's personal viewpoint on his/her disease and let him express freely his concerns and fear!

•Communicate with the patient in a comprehensible language to him and encourage him to all positive changes in his life-style!

•Communicate with your patient for problems related to unhealthy life-styles, allowing him to express his own concerns regarding their change!

•Make sure that your client understood your advices and whether he/she has the possibilities to follow them!

•Accept that the change of lifestyle can be difficult and that this change shall be gradual, continuous and often permanent!

•Be aware that most of your patients might need your support for a long period, for continuous encouragement and for maintaining the change of lifestyle.

PRIMARY CARE ON USE OF ALCOHOL AND TOBACCO
THE SCREENING TEST ON USE OF ALCOHOL AND TOBACCO

The aim of this test is to identify individuals who use alcohol and tobacco and to make sure on the necessary effective intervention. This test was designed for use on primary care, where impairments and consequences of the use of alcohol and tobacco may pass unnoticed.

The screening test (risk assessment on alcohol and tobacco) is a questionnaire with 7 questions on alcohol and 6 questions on tobacco, designed to be administered by a healthcare worker with a pen on a paper and which requires 5-7 minutes to be carried out. The questionnaire receives information in relation to the use of alcohol and tobacco and determines the risk level due to such a use and subsequently starts to discuss with the citizen about such a use.

Scores are categorized upon "low", "moderate" or "high risk". Referring to the test scores, it is further specified whether "there is no need for treatment", "are given brief interventions" or "it is necessary to refer to a specialist for treatment". The test gathers information in relation to the citizen's life on the use of alcohol and tobacco throughout his life and the relevant use over the last three months, as well as problems related to their use. The test can identify a certain range of problems related to the use of alcohol and tobacco, including acute intoxication (alcohol), regular use and relevant addiction.

The test consists briefly of the following questions:

•Question 1: Ask the citizen on the use of alcohol and tobacco during his life.

•Question 2: Ask about the frequency of such a use over the last three months; these data provide the impact of alcohol and tobacco in the current healthcare status.

•Question 3: Ask the citizen on the frequency of experiencing a strong desire to use alcohol over the past three months.

•Question 4: Ask the citizen on the frequency of health, social, legal or

financial problems related to the use of alcohol and tobacco over the past three months.

•Question 5: Ask the citizen on the use of alcohol and tobacco, which have affected in his tasks and responsibilities over the past three months.

•Question 6: Ask whether somebody else has expressed his concern about the use of alcohol by the citizen and how often has this happened recently.

•Question 7: Ask whether the citizen has been trying to reduce or stop the use of alcohol and tobacco and has already failed in his attempts.

All questions altogether provide the risk level related to the use of alcohol and tobacco by the citizen, and also provide data whether such a use is harmful or will bring about damages in the future if they continue to be used in the same way.

Calculation of scoring is performed by summing the scores of all responses given by the citizen. Each question has a rating scoring which varies from 2 to 7.

1. The test performance and connection with brief interventions.

The test was drafted by the WHO based on validity and effectiveness of AUDIT test (test of identifying non-correct use of alcohol). Success of AUDIT project in promoting brief interventions and in effectiveness of reducing problems related to the use of alcohol in institutions of primary care, prompted the design of this test in order to identify and interfere according to the citizen's needs.

On designing the questionnaire are used many instruments and techniques:

•As a more rapid test to be carried out as opposed to the existing tests on setting the diagnosis of substance use.

•A test which distinguishes the use of alcohol and tobacco.

•A test which is used in institutions of primary care.

•A test that can be easily interpreted and accordingly determines the necessary intervention.

Brief interventions have proven to be effective and are too valid in managing individuals with problems related to alcohol, thus filling out the emptiness between attempts of preventive intervention and more intensive treatment of individuals with serious disorders due to abuse with alcohol. In addition, brief interventions are worthy to facilitate serious cases of addiction to alcohol for a specialized treatment. This guideline is helpful to primary care workers, but even to individuals having problems with the alcohol.

The brief intervention serves to improve the population health and that of patients, as well as individuals. Once a testing systematic program has started, the approach of the system of brief intervention reveals how healthcare workers can put into use brief interventions to respond to three risk levels:

-Dangerous alcohol use.

-Harmful alcohol use.

-Addiction to alcohol and tobacco.

Brief interventions are not designed to treat individuals addicted to alcohol, who generally require a greater expertise and a more intensive clinical management. However, approach of the system of brief interventions, already described in this manual, highlights the role of individuals with potential addiction to alcohol for setting the diagnosis and for specialized treatment.

Healthcare workers can use the system of brief interventions as an efficient method to promote the health and prevent diseases in the community. Many smokers may change their reaction to smoking through brief advice given by professionals of primary care. Others may find it necessary to have external support, which may be offered by a specialized clinic for giving up smoking.

2. Reasons for screening regarding the use of alcohol and tobacco

Use of alcohol and tobacco is a heavy burden on public health worldwide. Use of alcohol and tobacco as well as related risks, lead to ongoing increase of risk level starting from low risk level (on occasions or non-problematic use) into moderate risk (more regular use), up to high risk (frequent use with high risk). High risk users or those with addiction are more easily identifiable by the doctors. Meanwhile, it is obvious that use of alcohol and tobacco, causing addiction, is related to a considerable burden of the relevant disease. In addition, even users who are not addicted constitute a heavy burden to the healthcare system, given that impairments might be greater than those of addicted users. Therefore the questionnaire was specifically designed to identify and interfere on individuals who are currently using substance in a different way, which can be the onset of impairment, thus including the risk of addiction advance.

Screening is intended to detect high risk healthcare problems or factors at an early stage before serious diseases or other problems might appear. This questionnaire should be part of the practice in the primary care settings for maintenance of preventive activities.
Criteria on Screening:
•To have important influence in healthcare and welfare of individuals and community.

•Screenings and interventions for individuals to be known as positive ones in this test are acceptable.

•Early identification associated with proper intervention lead to better results than delayed treatment.

•It is an appropriate test available to citizens, already acceptable by them.

•The screening test should be available to citizens with reasonable cost.

3 .Who can use the test?

The test is designed for use by primary care workers.
Primary care workers, particularly, have the opportunity to identify the patient's general lifestyle as well as a routine part of healthcare service and constitute a reliable source of information. Identification at levels of primary care can increase the opportunity to identify individuals who use alcohol, already not addicted, but nevertheless have suffered impairments and problems due to such a use. This category corresponds very well to brief interventions by the healthcare staff. Many healthcare problems identified in the structures of primary care can be aggravated due to the use of alcohol and tobacco. Their identification may provide opportunities for education of citizens on the risks of impairments incurred by the use of alcohol and tobacco.
For most of people, this questionnaire may be filled out within 5 or 7 minutes. Filling out of this questionnaire may be conducted even during a normal visit. However, the questionnaire can be administered even by another member of the medical staff while the citizen is waiting for the medical visit.

4. Which citizens should be screened?

The test can be used in various ways to assess the use of alcohol and tobacco by the citizens. In an ideal world, all primary care patients should be screened every year on the use of substance as part of the program of health promotion. If the healthcare worker screens only those citizens, whom he thinks have problems with the substance use, he may lose citizens with impairments caused by the use of these substances.

5. Problems in relation to the use of substances.

This is the first test of identification including alcohol and tobacco and may be helpful to primary care workers in identifying the risk level due to their use for a patient. It is important to highlight that impairments deriving from the use of alcohol and tobacco bring about serious health and social problems for the family, friends, law, work, school or individual's financial situation.

6. Specific healthcare problems.

Healthcare workers who administered the questionnaire and provide brief interventions should be aware of the most frequent consequences incurred by the use of alcohol and tobacco.

Use of alcohol and tobacco is a risk factor for a great number of health problems and brings about various diseases, inability and death. In addition, social problems are related to the addiction to alcohol and include break down of relationships with the family and friends as well as difficulty while studying or at work. For some people, (males aged over 45 and women after have passed menopause) use of alcohol in small doses has resulted (in surveys carried out in high incomes countries) with positive impact in health, more specifically in reduction of heart diseases. When we refer to small doses of alcohol, it is implied consumption of an average of 10 g alcohol per day for males and less than 10 g alcohol per day for females (a glass of beer contains 13 g alcohol, 100 ml wine has nearly 9.5 g alcohol, 35 ml beverage with 40 % alcohol contains 11 g alcohol).

Women, who consume alcohol during their pregnancy, are at risk to have babies with birth defects, children with difficulties in studying and other behaviors, as well as children with mental retardation. As a result of regular consumption of alcohol and tobacco, is developed tolerance and addiction to them. Alcohol users, who are now addicted, may suffer from symptoms of addiction if they reduce or stop alcohol consumption. Addiction symptoms include trembling, sweating, anxiety, nausea, vomiting, diarrhea, insomnia, headache, hypertension, hallucinations and convulsion. Risk related to the alcohol problems above the allowed norms includes:

•Drunkenness (Intoxication), aggressive and violent behavior, accidents and injuries, nausea and vomiting.

•Reduction of sexual performance and premature aging.

•Problems related to digestion, ulcers, inflammation of the pancreas and high blood pressure.

•Anxiety and depression, difficulty in social relationships, financial

problems and problems at work.

•Difficulty to memorize and solve certain problems.

•Birth defects and brain damage of newly born babies from pregnant women who consume alcohol.

•Temporary brain damage, leading to memory loss, cognitive deficiencies and orientation problems.

•Cerebral insult, muscle and nerve damage.

•Diseases of liver and pancreas.

•Cancer of the mouth, throat and chest.

•Suicide.

Tobacco Products

Use of tobacco products constitutes a concerning problem of public health and one of the causes of numerous deaths worldwide. Use of tobacco products is a risking factor to a numerous number of health problems and increases the risk to complications for other health problems, such as high blood pressure, diabetes and asthma. Children exposed to cigarette smoke present a high risk of having health problems, such as: respiratory infections, allergies and asthma. Pregnant women who smoke are more prone to risk for having an abortion, for giving birth to premature babies or to give birth to babies with small body weight, also exposure to tobacco smoke increases the risk to health problems even for people who do not smoke.
Risks associated with use of tobacco products include:
-Premature aging and skin wrinkling
-Reduces physical ability and more time for the buddy to be regenerated after catching a cold or flu
-Respiratory infections or asthma

-High blood pressure and diabetes
-Abortion, premature babies and babies with small weight
-Kidney disease
-Chronic lung disease
-Heart disease, cerebral insult and vascular disease
-Cancer of esophagus, mouth, throat, lung and breast.

7.Consideration to the citizen when tobacco and alcohol test is carried out.

The questionnaire can be administered alone or combined with other questionnaires as part of a healthcare interview, a lifestyle questionnaire or as part of a medical history. Citizens react well and provide correct answers in relation to the use of alcohol and tobacco when the healthcare worker:

• States that he is listening attentively to the citizen

• Is friendly and does no prejudices or judges the answers

• Shows sensitivity and empathy in front of the citizen

• Provides information on the purpose of carrying out the questionnaire

• Explains carefully the reasons why he is asking on the use of alcohol.

• Explains to the citizen on the maintenance of the confidentiality of his answers.

It is very helpful when the healthcare worker explains to the citizen why he is being considered in relation to the use of substances and problems relevant to their use, as well as explains that this procedure is similar to other procedures of medical screening, such as blood pressure measurement or similar to routine questions on the manor of nutrition. Screening for alcohol use may help citizens to understand connection between the use of these substances and their health, a well as make them more open to ask for help through alcohol and tobacco test.

Protection and maintenance of citizen's privacy and confidentiality of the information he provides, is very important. Any personal information related to the citizen should not be given to other individuals or groups without his permission. Confidentiality implies accomplishment of the interview in a private place and the results of alcohol and tobacco tests should be registered in the citizen's file and should not be made accessible to other individuals without the citizen's permission. Reinsure the citizen that the information provided by him shall remain confidential and will help to receive the necessary information as to the level of use of alcohol and tobacco as well as for proper interventions he really needs. Healthcare workers, needs to choose the best circumstances to administer the questionnaire and to be flexible and sensible towards the citizens necessities. Use your clinical judgment to determine the best time for discussing with citizens about the questionnaire!

8. Presentation with the test (questionnaire)

The questionnaire is preceded by a presentation. Below is a way of presentation of the questionnaire:

"The following questions ask information on your experience of alcohol use, tobacco products during your life and mainly during the past three months". (Show the answers sheet)!

For instance: "I understand that the others think that you should not use alcohol, but it is important regarding your health assessment to know what you really do".

The questionnaire is valid when it is administered by an interviewer.

9. Useful practices in administering test questions

•Keep the questionnaire in that manner that the patient cannot see what you are writing, because this might influence in his answers!

•Every answer must be filled out – including answers 0 or negative answers, because otherwise, there might be mistakes in calculating the scores.

•In cases when the patient's answers do not sound logical and in fluency, then you may ask other clarifying questions to make sure that the patient has already understood the question and will respond properly on what you have asked for.

It is very important for the healthcare worker to understand well calculation of scores based on patient's answers before he administered the questionnaire.

10. How to administer the screening questionnaire?

Certain instances, when obligations for different roles as a result of use of alcohol and tobacco are not met, can be as follows:

•Absence at work, problems with the employer, problems with accomplishment of tasks at work, poor performance at work, neglect and dismiss from work;

•Absence at school, failure or poor performance in accomplishing assignments or examinations, suspension or exclusion;

•Failure to meet family "agreements" and bad relations with family members, neglect on caring activities to children, neglect to clean the house or to pay the bills, forgetting to important family celebrations.

11. Calculation of questionnaire scoring

Every question of the questionnaire has a set of answers and every answer for questions 2 to 7 has a numerical calculation. The interviewer circles the numerical scores which correspond to the citizen's answers for every question.

12. Interpretation of the questionnaire scoring

The questionnaire defines the risk scores for any substance used, to start discussion (brief intervention) with citizens on the use of substances. Answers for every substance may be categorized of "low", "moderate" or "high" risk. These risk categories determine the necessary intervention for the citizen ("no treatment", "brief treatment" or "referring to the specialist and treatment").
Even though the questionnaire serves as an influencing factor, on the risk level related to the alcohol.

Low risk

Citizens having "three or less" scores for tobacco and ("10 or less" for alcohol) in the questionnaire have low risk on problems related to the use of substances. Even though they use substances occasionally, they do not still experience problems related to the use of substances and have low risk to generate problems in the future, if they continue with these doses of use.

Moderate risk

Citizens having scores "between 4 and 26" for tobacco and ("11 and 26" for alcohol) have moderate risk on health and other problems. Some problems, they might be experiencing currently. The continuous use of these substances at these doses may cause that in the future citizens have health problems and other problems, including also the opportunity to create addiction. Risk is increased for those persons with a past history with problems and addiction to substances.

High risk

Calculation of scores "27 or more" about the citizen for any substance (tobacco and alcohol) classifies him at a very high risk for addiction to this substance and it is very likely that he experiences health, social, financial and legal problems as well as problems on relation to others.

What do scores for specific substances imply?

Alcohol   Tobacco
Low risk   0 – 10   0 – 3
Moderate risk 11 – 26 4 – 26
High risk   27 +   27 +

13. Selection of treatment based on test scoring

The final report card is filled out by the end of interview and following completion of the questionnaire and it is used to give to the citizen results about the risk level on the use of substance. A proper way to start a brief intervention is by asking the citizen "are you interested in knowing how many points you scored in the questionnaire already concluded?" Register the risk scores for every substance in the boxes shown on the first page of the final report card. On the other pages register the risk level for all substances placing the relevant mark in the proper boxes ("low", "moderate" or "high"). The report card is used during consultation to provide the outcomes and is given to the citizen to take with him in order to remember what has been discussed.

Low risk

Citizens having low risk should be subject to usual treatment and if there is time available the test results and scores may be discussed with him. Citizens having low risk or abstain in substance use should be encouraged to continue their behavior in this way. For citizens having low risk level for damages caused by the substance use, this intervention is adequate.

Moderate risk

Citizens having moderate risk are necessary to receive a brief intervention for 3 – 15 minutes. The brief intervention provides the patients with test results using the final report card and common motivation techniques. Brief interventions have revealed that they are affective especially in reducing the quantity of substances used by citizens. More information

in offering brief interventions will be provided in the manual "on primary care". Citizens, who are subject to brief interventions, should also be provided with "SELF-HELP STRATEGY – for prevention of substance use", brochures and a copy of the final report card, as well as specific data.

High risk

Also, brief interventions should be provided to citizens having high risk. A brief intervention is not feasible as a separate treatment for high risk users. In addition, brief intervention may be used in this context to encourage citizens to contact with a specialist in order to receive the proper assistance related to the substance use. This assistance can be provided by a specialist working in the institution of primary care or for specialized treatment at the QSUT (for alcohol).

14. How to include "screening on tobacco and alcohol" in daily practices?

Screening activities, such as measuring blood pressure, pap-test (control of cervical smear), measuring the cholesterol and monitoring of weight and children's height, as well as indicators of health wellbeing are some of the screening practices currently accomplished in some primary care centers. Screening for problems related to the use of alcohol and tobacco as well as the necessary healthcare for the citizen constitute also a very important part of primary care practices.
Implementation of the screening program and brief interventions requires effective management of the staff and includes four main aspects:
Planning, training, monitoring and conclusions.

Planning

Planning is necessary to compile the screening program and ensure that the process complies with all primary care practices.

Ideally, the whole primary care staff should be included in the program planning. The staff to be included in this planning understands better reasons of the program, have a responsibility sense and higher enthusiasm in implementation, understands better its role in the program and it is

more committed to do its own job. Staff with various education, as well as various roles and experiences, will be necessary to work together to identify any possible difficulty and to seek way-outs to overcome them. It will be helpful if a staff member is assigned as a coordinator for screening of tobacco and alcohol. This person would be responsible for ensuring that the whole staff has understood its own role and responsibilities, and to check whether all tasks are implemented.

There are accurate data on effectiveness of a certain number of strategies for implementation of screening and preventive programs in primary care. These strategies include:

•Using the admission room for patient, suggesting him to think about use of substances through:

a)Posters showing problems and risks in connection with use of tobacco and alcohol substances;
b) A well organized table of notes, including data on the screening program;
c)Practically information materials;
d)Leaflets and educational materials for the patient.

•Inclusion of healthcare summary with the patient's data on:

a)Specific healthcare needs;
b)The fact whether the citizen is screened about alcohol;
c)The scores collected by the questionnaire and the risk status;
d)The type of intervention undertaken;
e)The time when the patient will again be screened in the future.

•Posting of schedules with the citizen's data to show whether he was screened and the time when screening was carried out.

•Implementation of the memory systems. The system can be used on:

a)Inviting the citizen to take part in the alcohol and tobacco screening program;
b)Helping healthcare workers to administer the questionnaire during the

patient's visit.

c)Inviting the citizen for a rescreening in the future, as necessary;

d)Reminding of the healthcare worker and the patient on the time when the questionnaire for alcohol or tobacco will be repeated.

If there are the necessary sources, a computerized system would be very helpful for managing the screening program.

Training

Training of the whole staff included in the screening program is important as to the effectiveness of the program. Training should include:

•Reading of manuals related to the administration of tobacco and alcohol tests and to the brief interventions;

•Explaining why tobacco and alcohol screening programs and brief interventions are important;

•Roles and functions of the staff in the screening program and the way how this program is suited to their work;

•Explaining how to administer the testing questionnaire and how to calculate the test scores.

•Explaining how to administer brief interventions relevant to tobacco and alcohol testing.

•Explaining how to develop subsequent activities to help citizens with different risk levels.

Effective training encourages the staff to be open to discuss its roles and functions, as well as tasks relevant to the screening program. Additionally, it offers the opportunity to play specific roles and practice test administration and brief interventions.

Monitoring
Correct monitoring of the screening program is important to guarantee that any problem related to implementation was managed properly and to assess the program success. There are many ways to assess the success of a screening program:

•Percentage of citizens already screened, whose scores, revealing that they are at high or moderate risk, can be calculated for every tobacco and alcohol substance;
•The ratio of citizens receiving the necessary intervention based on testing questionnaire scores (results and data, brief interventions, more intensive treatment) can be calculated.

One of the screening advantages in the primary care is the opportunity to follow up the citizen in the future.

A very important aspect of screening is following up those cases which are identified and to check the way how they respond to the intervention. A proper way to achieve this aim is an annual screening. Citizens who are screened before 12 months and based on scores collected are categorized with moderate risk for problems related to the use of alcohol and tobacco can be rescreened to determine whether has occurred any change in their behavior in relation to the use of substances. Similarly patients who are screened before 12 months and resulted to have high risk should be rescreened to check how they reacted to treatment and interventions of the specialists.

Monitoring of activities cannot be carried out unless correct recording for patients is held. It is important to ensure detail of screening and interventions carried out for every registered patient. This can be achieved if special schedules or healthcare summary sheets are used. Additionally, it is very helpful if in the primary care practice is included a central register of patients and screening activities. The coordinator of tobacco and alcohol testing is responsible and should guarantee accurate registrations of screening.

"BRIEF INTERVENTIONS"

For Impairments Caused by Use of Alcohol and Tobacco

This manual aims at explaining theoretical basis and data on effectiveness of brief interventions and help primary care workers to include brief interventions for citizens being at risk from use of substances. This manual presents a comprehensive approach on how to display brief interventions and in cases when such interventions, upon specific circumstances, have not proved effective by the primary care workers. Brief intervention is designed to improve the health of population and grouping of patients as well as individuals.

What are brief interventions?

The techniques of brief interventions described in this manual are focused more on modification of the users' attitude to alcohol or tobacco (the substance which was identified by the citizen or the substance having the highest scoring in the screening test). Brief interventions last 3-15 minutes and are given to citizens who have made the screening test and are determined the risk scores ("low", "moderate" or "high") for every substance.

The risk scores are registered in the final report card which is used to provide the citizen with his personal results showing him the scores collected and healthcare problems relevant to his risk level. Asking the citizens whether they are interested in checking their results (after they have concluded the test) provides the healthcare workers with the opportunity to start a discussion (brief interventions) with the citizens in a well understanding way. This will be a successful manner for citizens with moderate risk to start their change.

As described above, scores in the screening test for the use of alcohol and tobacco, are related to the risk categories and recommended interventions.

Table 1 – risk scoring from screening, risk level and interventions.

Alcohol	Tobacco	Risk level	Intervention
0-10	0.3	Low risk	General healthcare advice
11-26	4-26	Moderate risk	Brief interventions Provision of Leaflets and Data
27 +	27 +	High risk	Brief interventions Provision of Leaflets and Data Referring for treatment to the specialis

Screening and short interventions aim at identifying current or potential problems caused as a result of use of substances and promoting those who are at risk to change their behavior, thus creating a connection between the current manner of use and risk or impairment. Brief interventions are designed to be applied on people with moderate risk of use of substances and to provide them with the necessary interventions.
These are people not addicted to the use of substances, but they use them in a way which is harmful and causes health, social, legal or financial problems. In general, brief interventions are not used as a single treatment for people already addicted to the use of substances or who have high risk. However, a brief intervention is necessary to encourage citizens to accept treatment to a specialist, both at the primary care, or at a specialized agency for addiction treatment. The aim of intervention is to help the citizen understand that us of substance puts him at risk and this might serve as a motivation for him to reduce use of substance. Brief interventions should be personalized and offered in a supportive manner rather than a judging one. Brief interventions follow 10 suggested steps (or the first 5 steps for 3 – minutes brief interventions), which are:

1.Ask the citizen if he is interested in knowing the scores he has collected from the questionnaire.

2.Personalized result is ensured for the citizen on his scores, using the final report card (result of the questionnaire).

3.Advice is given on how to reduce the risk related to the use of alcohol and tobacco.

4.Citizens are allowed to undertake their own responsibilities related to final solutions.

5.The citizen is asked how concerned he is about the scores collected from the questionnaire.

6."Good things" of the use of alcohol and tobacco are assessed.

7."Less good things" of the use of alcohol and tobacco are assessed.

8.The citizen's statements are summarized, which should reflect and emphasize less good things.

9.Citizens are asked how concerned they are about "less good things".

10.The citizen is provided with material to take with him in order to support brief interventions.

Many professionals of primary care avoid screening for use of substances and this leads to avoidance of intervention. Research have revealed that the main reasons which healthcare workers report for non inclusion are: time absence, they feel that they are not competent on providing advice and are concerned least citizens refuse interventions. This manual tries to clarify all these concerns. Both, screening and brief intervention can be effectively and fast accomplished, especially brief intervention, which can be provided in 3 minutes if focused in the main substance used by the citizen. Provision of brief interventions – which is described gradually in this manual – is considered that it motivates citizens to reduce use of substance and poses less resistance towards them.

Primary care workers have often a continuous relation with citizens and understand their needs. In general, citizens expect from family doctors to be included in all their healthcare aspects and feel more comfortable on discussing sensible matters (eg. Use of substances), since the doctor is a person whom they know and trust on. Continuous relations implies that interventions may be spread on time and be part of several consultations. Furthermore, brief interventions are a manner with high cost effectiveness.

Model of changing behavior

A model of changing behavior developed by Prochaska and Di Clemente presents a valuable context to understand the process how people change their behavior and to take in consideration how committed they are to change use of substance or other behaviors of lifestyle.

The model proposes that people go to discrete stages of change. Processes through which people change appear to be the same with or without treatment. The model includes different stages: Preplanning; Planning; Preparation; Action; Maintenance (of change), which are shown in figure 1.

The aim of brief interventions is to help people pass from one stage to another starting their movement from preplanning to planning and then prepare for action and maintenance of change. The movement from preplanning level to the planning one might not result in the decision for reduction of the use of substance; however this is a positive step which might lead to the action stage in the future.

It is worth noting that there is no determined period according to which a person should pass into every stage and people may return several time between stages (it might be minutes, months or years). Some citizens may directly move from preplanning into action following a brief intervention. Subsequently is given a brief intervention for the behavior process and knowledge for every stage. However, primary care workers who provide interventions for more than 15 minutes or in ongoing sessions with citizens may need more extensive knowledge on the model of behavior and relevant techniques.

Preplanning

Many citizens who result positive in the screening test can belong to this stage. 10 steps of brief interventions, suggested in this manual, belong mainly to this stage. People at this stage:

•Do not think to change use of substance;
•Are focused on positive aspects of use of substance.
•Can display resistance to speak about use of substance.

•Do not know or do not accept that the substance used is problematic one.
•Do not respond to direct advice to change their behavior, but might be interested to information about risks with regard to the level and manner of using substances, given by the primary care worker.

Planning

Some citizens, who result positive in the screening test, might belong to this stage. 10 steps of brief interventions suggested in this manual are intended for their majority at the convincing stage.

People at this stage:

•Think to reduce or stop use of substance;
•Feel well with the use of these substances and think that they will not feel similarly well when they will not use these substances.
•Are aware about several problems related to the use of substance and might know advantages and disadvantages of how to use the substance.
•Respond to the data in relation to risks deriving from use of substance, respond to advice to reduce use of substance and are included in discussions about use of substance if properly treated by the healthcare worker.

A part of people at the planning stage might be willing to change, but:

•Might now know how to make a change;
•Do not believe that they are able to change.

Preparation

Preparation follows planning, which includes planning for action in the near future and arrangement of last preparations before starting the change of behavior. At this stage, citizens are convinced to act and committed to change; nevertheless they still feel insecure or have doubts. People at the preparation stage:

•Prepare to undertake actions;
•May tell the others on the change and explain plans on how will achieve this;
•Make little changes related to use of substance;
•Reconsider the current behavior and take into consideration what the behavior change will offer to them;
•Become more aware and are ready to change their behavior;
•Take into consideration valuable opportunities to them;
•Specify the dates and determine strategies to change.

Action

A small part of patients who complete ASSIST questionnaire are at the action stage. At this stage people carry out obvious changes and spend too much energy to change. People at this stage:

•Have made the decision that their way of substance use should be changed;
•Are doing something to change the behavior;
•Have reduced the consume quantity or have totally stopped substance use;
•May still continue to feel insecure about substance use and need to be encouraged and supported to go ahead with their decision.

Maintenance of change/maintenance of balance

Success in long lasting terms implies remaining at this stage. People at this stage of continuity:

•Try to maintain changes in behavior they have already made;
•Work to prevent return (return risk is increased over the time);
•Pay attention to high risk situations and strategies in order to manage these situations;
•Are well prepared with a strategy in order to avoid situations which pose risk to return;

•Ensure support and good helpful relations, and are also self-rewarding.

Return

The majority of people who try to make changes of their behavior related to the use of substances will fail at least once. This should be expected and considered as a learning process and not as a failure. Very few people change since the very first attempt and return is the best time to help citizens to review their action plan.

This review should examine the timing framework, what strategies currently functioned or whether these strategies were unclear, too ambitious and non-realistic. Smokers, for instance, make nearly 6 attempts to quit smoking before they are successful. Passing to return, they will return to the previous stages: preplanning, planning, preparation, action or maintenance of balance (maintenance of the change). For some people, change of substance use becomes easier anytime they prove it, until they are finally successful.

In conclusion, stages of model of change can be used for the processes of change. In order to change their behavior, people also change other aspects of their life, including:

•Awareness about themselves;
•Awareness about effects of behavior to them;
•Feelings about behavior;
•Image about oneself and thinking.

Modification of behavior is the most obvious change and often requires more attention. We may help them to move from one stage to another.

It is worth noting that 10 suggested steps for brief interventions after screening test, given in this manual, are intended to make citizens go through these processes into different stages: Enhance awareness, social freedom, emotional advice, reassessment of oneself, commitment, self-rewarding, use of medications, control of the relevant setting and helpful relations.

Healthcare worker should not be concerned if they are reading this and thinking how they can offer brief interventions and define whether the citizen is under change. Enhance of experience by administering the screening texts, as well as brief interventions constitute the best way to understand how the citizen changes and how 10 intervention steps are developed.

Effective components of brief interventions "FRAMES"
Clinical experience and research on brief interventions for the use of substances have revealed that brief interventions are effective and include a certain range of stable and repeated characteristics. These frames are summarized using briefings in acronym of English language FRAMES (Feedback, Responsibility, Advice, Menu of options, Empathy, Self efficacy), which imply feedback, responsibility, advice, menu of option, empathy and self efficacy.

The most important characteristic of FRAMES is presentation of a connection between ASSIST and brief intervention, which should include feedback, responsibility and advice. A description for each of them is given below along with examples for using these techniques.

Feedback

Feedback of an individual besides general feedbacks constitutes a key component of brief intervention. Assessment of the questionnaire results can include data in relation to the use of substances taken by the individual and an assessment on the risk level regarding these results. It should be mentioned that many patients are interested in knowing the questionnaire scoring and their inclination.

In addition, the risk level should be specified in the answers card: "high", "moderate", or "low". The final report card, filled out for every patient, is designed to connect the personal risk with the most common experienced problems.

Briefly, feedback is provision of personal data to the citizen objectively. This reporting will serve to determine the path to be followed based on results of the screening test.

Responsibility

A key principle of intervention with substance users is that they should know and accept that they are responsible for their behavior and that it is up to them to make choices regarding substance use and brief interventions provided by the healthcare worker. Communicating with the citizen through terms such as: "are you interested in knowing your scoring in this questionnaire?", "What will you do with the information provided to you, is your choice and depends on you." and "How concerned are you with the questionnaire answers", enables him to keep under control his personal behavior and on consequences in cases intervention is not provided. This sense of control is an important element of motivation for change and for reduction of resistance. Using with the citizen a proper way of communication such as "I think that you should..." or "I am concerned about your consumption of x substance" is very likely to create a certain type of resistance to the citizens and bring to them the willingness to continue consumption of the substance in the same way.

Advice

An important component of effective intervention is advice to establish clear objectives regarding the reduction of substance consumption. This requires to be achieved through a non-judgment way. It is likely that the citizen is not aware that the way he consumes a certain substance may lead him to health problems or other problems. Provision of clear advice that reduction or prohibition of the substance use will reduce the risk of problems in the future, will increase his awareness and his considerations to change the relevant behavior. The advice can be offered in a simple manner, formulated in such a way as:
"the best way for you to reduce the risk is to reduce or prohibit use of x substance"

Yet, it is necessary to emphasize that the way of communication used to convey a proper message is a very important element. Comments such as: "You should stop the use of this substance." or "I am concerned about your use of x substance", do not constitute clear and objective advice.

Elements of brief interventions that are effective/motivational interviewing
Interviewing focused on the citizen constitutes an interaction method, which leads people to explore their suspicions in relation to the use of substance. It is particularly important when working with patients in the pre-preparation and preparation stages, but principles and capabilities are important throughout all stages. The motivational interviewing is based on understanding that the effectiveness of treatment is a natural process of change and motivation for change occurs in the context of relations between the citizen and healthcare worker, even though the spend very little time together.

Empathy
An important principle of motivational interviewing is that the healthcare worker expresses his empathy towards the citizen. In a certain clinical situation, empathy consists of accepting, understanding and non-judging the citizen's views. Empathy implies avoidance of labeling such as "alcoholic". It is especially important to avoid confrontation and criticism against the citizen. The healthcare worker empathy is an important contributor to the fact how well the citizen responds to the intervention.

Formulate open questions
Citizens are more motivated to change their behavior in relation to the substance use when they notice a difference or incompliance between the current substance use and relevant problems. Further, they draw a comparison between them and the manner how they would like their life to be, including also relations with the others. The motivational interviewing aims at establishing and identifying discrepancy between the current behavior and aims and values in terms of the citizen. It is important for the citizen to identify his values and attitudes and expresses his reasons

for change. One of the ways for orienting citizens to express their reasons for change is that the healthcare worker should make open questions. Conduction of open questions is a technique often used in motivational interviewing to make the citizen start thinking and speaking about substance use. Within this context an example of a certain question can be: "Are you worried about the test result?", "How?" or "What do you think are the good things deriving from consumption of alcohol and tobacco?", "What are the less good things that you benefit out of their consumption?" Conduction of open questions for citizens also reinforces the notion that the citizen is responsible for his own choice to use the substance as well as for the necessary intervention.

Resistance
A key principle of motivational interviewing is to accept that resistance to changing is normal and to invite the citizen to take into consideration the new information as well as new perspective on substance use. When the citizen expresses resistance, the healthcare worker should reflect rather than object. It might be helping to encourage the citizen to control a little his resistance in order that both understand each other well. It is worth noting that in the context of brief interventions after screening, there are few possibilities that the citizen expresses resistance.

Reflective listening and paraphrasing
Reflecting listening of the citizen implies to listen to the citizen attentively and understand what he means. It is important to reflect and pay attention to meanings and feeling expressed by the citizen as well as to words used to him. Using reflective listening is as if you are a mirror for the person in front of you, so that he can listen by the healthcare worker what he has already communicated. The reflective listening conveys to the citizen that the healthcare worker has understood what he has already said or it might be used to clarify what the citizen implies.

Paraphrasing is an important way to assemble together what is already said and to prepare the citizen for change. Paraphrasing strengthens the reflective listening, especially in conversation as to the citizen's concerns

and change. Initially, citizens listen to what they say themselves, then listen to the doctor to reflect and then listen to the paraphrasing again. The healthcare worker can choose what to include in the summary of the conversation and can use it for orienting the citizen to take into consideration consequences caused by the substance use. Within the context of brief interventions, reflective listening and the summary are used to emphasize the doubts and hesitation of the citizen for using the substance and to guide the citizen towards best recognition of his concerns and problems.

For instance: "So, you are satisfied when you use alcohol during holidays and do not think that this causes you problems". On the other hand, you feel concerned because you spend too much money. Therefore, during this summary, the healthcare worker mentions what the citizen has already said and in this way tries to make the citizen aware that the use of alcohol brings him numerous problems and tries to make him reflect on them.

Key points:
Briefly, the healthcare worker administering the brief interventions after the screening test:

•Is objective;
•Is responsible for the delivery of the relevant information to the citizen;
•Is empathic and non-judgmental;
•Respects the citizen's choices in relation to the decisions for the substance use;
•Respects the citizen's choices during brief interventions;
•Tells to the citizen that he is listening to him and that he is not missing any words from what the citizen is saying;
•Does not agree with the citizen on everything he can say;
•Uses a respectable communication to the citizen and considers him as equal;
•Uses open questions to lead the conversation and orient the citizen in self-awareness and self-change of his behavior.

Let's decide together/step by step an approach between ASSIST and brief interventions.

Brief interventions in summary follow 10 steps suggested below (or 5 first steps for a briefer intervention). The process and examples provided in this manual describe brief interventions focused only on the use of a substance, mainly the one which causes more problems for the citizen (the substance identified with the highest scoring in the screening test).

The attempt to change many behaviors simultaneously can be difficult and can discourage the citizen, so, focus on and intervention for only a substance use might result more advantageous. The substance use which cause more problems and concerns is usually the one which has the highest scoring during the screening test made by the citizen.

Interventions described in this manual last 3 to 15 minutes and are mainly for citizens who are in the pre-planning or planning stage of the change. This implies that they are likely to constitute most of the citizens.

Step by step actions described below, are designed to assist and establish confidence to the healthcare workers who have not been specifically trained in motivational interviewing. In addition, they serve as a context for the workers who have been more experienced which can be further extended for long or repeated sessions or for citizens who use more than one substance.

1. Ask the citizens if they are interested in knowing their scoring from the test.
2. Give to the citizen the result of his scoring using the Final Report card.
3. Provide advice to them on how to reduce the risk related to the substance use.
4. Allow the citizen to undertake his responsibility for his choices.
5. Ask the citizen how concerned he is about his scoring from the test.
6. Realize good things deriving as a result of substance use against less good things of substance use.
7. Summarize the citizen's statements and reflect on them regarding the substance use by emphasizing "less good things".

8. Ask the citizen how concerned he is in relation to "less good things".
9. Give the citizen home-used materials to support brief interventions.

Step 1
Ask the citizens whether they are interested in knowing their scoring from the test! The final report card that is completed by the end of the interview for the questionnaire, is used to give to the citizen his conclusions related to the risk level of substance use.

The best method to start intervention is by asking the citizen: "Are you interested in knowing your scoring results from the questionnaire we just filled out?"

This question constitutes the introduction of the healthcare worker for providing brief interventions. Paraphrasing of the question in the above mentioned way gives to the citizen the right "to choose" about what will happen next and immediately reduces any resistance. An affirmative answer by the citizen enables the healthcare worker to provide the citizen with the relevant information as to the scoring of the questionnaire, risk level, as well as the way how to reduce the risk. It is worth noting that most of the citizens want to know and understand the questionnaire results.

The questionnaire scores for every substance should be registered in the box given in the final report card. The risk scoring should be noted in the relevant box for all substances ("low", "moderate", or "high").

The final report card is used during consultation by providing the citizen with the relevant conclusions and is given to the citizen to take with him in order to remember what is already discussed. This card also serves as something tangible for the healthcare worker and the citizen to focus on during the discussion.

Step 2
Give to the citizen conclusions about his scoring and using the Final Report card. The healthcare worker can provide the citizen with his final

conclusions objectively by reading the final report card.

First, scoring and risk level related to every any substance presented in the first page of the Final Report card. The healthcare worker should read the scores for every substance in the card and should tell the citizen whether the risk level is low, moderate or high for every substance. Further on, he explains to the citizen specifications for low, moderate or high risk. This can be carried out by reading specifications in the box at the end of the page. An example is as follows:

"Here are all substances for which I asked you and these are the scores for every substance. As you can notice, scoring for tobacco is16 and this puts you to a moderate risk. Scoring for alcohol is 15 and the risk level is moderate. You will have these problems not only now, but in the future as well, if you continue to use substances like now".

The second part of providing conclusions consists of the communication of risk level regarding any substance use focusing on the substance with the highest scores.

Step 3
Provide advice on how to reduce the risk related to the substance use!
Provision of advice for citizens is establishment of relation between reduction of substance use and reduction of impairment. Citizens might not be aware on the relation between substance use and their current or potential problems. Advice implies to communicate to the patients that reduction of consumed quantity or stopping of substance use will reduce the risk of problems now and in the future. An effective way of providing advice to the patients is by saying to them:
"The best way to reduce the risk of these impairments is to lower the quantity of substance consumed or still better, not to consume it at all".

Provision of advice objectively offers the citizen the necessary information and helps him to take decisions in a neutral and supportive way.

Step 4
Allow the citizen to undertake his responsibility for his choice.
As mentioned above in this manual, maintenance of personal control is an important factor of motivation towards achieving the proper change. The healthcare worker should be convinced that the citizen is responsible for his decision related to the substance use. This fact should be communicated to the citizen during the brief intervention, especially after providing the relevant conclusions and advice.

Step 5
Ask the citizen how concerned he is about his scoring from the test!
This is an open question designed to receive the citizen's opinion for substance use. In addition, this serves to start communication for any concern they might have for substance use. Use of open questions in this context is a very motivational interviewing technique and it might be the first time for the citizen that he expresses his concerns about substance use. There is evidence that verbalization of concerns in a supportive context lead to change of trusts behavior. The healthcare worker should go to the first page of Final Report card in order that the citizen can see again his scores and asks: "How concerned are you about the scores for (the substance)?"

Step 6 and 7
The citizen should understand the good things deriving as a result of substance use, as against less good things of substance use.
Placing of the citizen in a position to take into consideration and verbalize "good things" and "less good things" in relation to the substance use is a standard interviewing technique, which was designed to develop discrepancy or to create a cognitive conflict inside the citizen. It might be the first time that the citizen thinks so seriously. Reasons pro and against substance constitute the first important step in changing the behavior.

It is important to ask about positive and negative aspects of substance use, in order that the citizen understands that the healthcare worker is aware that the citizen has a "functional" reason for using the substance.

The best way to make the citizen aware is by asking him two open questions. Start with the positive aspects of substance use by stating: "What are the good things that you benefit by using (the substance")...?"
Once the citizen has finished talking about good things, ask him about less positive aspects of substance use. You could ask: "what are "less good" things that you benefit by using the substance?" If a patient has difficulty during verbalization of "less good things", the healthcare worker can intervene by considering the answers given by the citizen during completion of the questionnaire (especially in question 4) or can ask open questions in these fields:

•Health – physical and mental;
•Social – relations with the partner, family, friends and work colleagues;
•Legal – accidents, contacts with law implementing individuals, driving while being drunk;
•Financial – impact of personal budget;
•Professional – difficulties at work; studies;
•Spiritual – feeling of being guilty, loneliness, law and self-assessment.

Step 8
Summarize the citizen's statements and reflect on them for substance use emphasizing "less good things". Reflect again to the citizen what he has already said about good things and those less good once, deriving as a result of substance use.

This is a simple way, but effective one to understand the citizen's experiences and prepare him to start the proper change. If a citizen feels that he was listened attentively on what he said, it is very likely that he takes into consideration the information and advice provided by the healthcare worker. Also reflection and summary allow that the healthcare worker emphasizes constantly the citizen's cognitive conflict and reveal the negative aspects of substance use.

Below is given an example for positive and negative consequences with an emphasis on negative ones: "So you drink because it releases you and the first glasses make you feel happy, relaxed and complex-free, when you go

out for entertainment... but you dislike the fact that you find it difficult to stop drinking once you have started it and often it results that you say or do things for which you regret the next day. This also includes going to the hospital last week after you were injured by fighting with ...".

Step 9
Ask the citizen how concerned he is in relation to "the less good things"! This is another open question not like the one in Step 5 regarding the concerns about the questionnaire scoring. It is similar to the first question as it serves to reinforce the opinion for change to the citizen and ensures to the healthcare a platform according to which, it is necessary to allow significant time available for a brief intervention. The question might be asked in this way: "Are you concerned about negative consequences? How?".

Step 10
Provide the citizen with home-used materials to support brief interventions. The citizen should take with him a copy of final report card and other information written in conclusion of advice. The written information can enforce and consolidate the effects of brief intervention, if it is read by the citizen. In addition, it might serve as a second intervention, if it is read by the citizen's friends or family members, who can use such substances.

Finally, there are 3-4 materials to be given to the citizen to complete brief interventions, there are:
•The citizen's final report card
•Leaflet with key information for substances used by the citizen
•The brochure with the guideline on self-helping strategy to reduce the quantity or to stop the consumption of the substance
•The card of injection risk (if necessary).

The final report card serves to remind the citizen of the scoring he has achieved and of the risk of substance used on which they are focused during the brief intervention.
In addition, this card contains information about the use of other

substances, on which the healthcare worker might have not been focused on during the brief intervention, although the citizen uses them.

The guideline on self-helping strategy for prevention of substance used is a guideline, which helps the citizen to decide if he will change his behavior against use of any substance. This guideline contains some simple strategies, but effective ones to help the citizen to reduce the quantity of substance already consumed or to stop it at all. It is in writing and can be used by people who have at least 5 years of education and also includes pictures.

Low-risk citizens
Citizens, appearing at low-risk level, need no intervention to change the substance used and with them can be proceeded with normal visit. However, it would be a good practice to encourage them to continue their own behavior related to the substance used. Furthermore, if time permits, provision of key information on alcohol can be very useful for several reasons:
•It increases the level of community awareness about alcohol and its risk.
•It can act as a preventive measure by encouraging low-risk users to continue
•It can remind the citizens of a past history of impairments caused by substance used about the risks to be impaired again if they start to abuse with substances.
•The information provided may pass to friends, family members who have similar problems with substances.

Table 2 Table of Decision-making

	Benefits	Costs
Short-term		
Long-term		

What medications treat alcoholism?
There are a certain range of medications used to treat the alcoholism. Valium and Librium are sometimes used during the first days shortly after an individual stops drinking, in order to help him to give it up. However, these medications cannot be used after the first days, given that the organism becomes very quickly used to them. Other medications are used to help people for being sober. A medication used for this purpose is ReVia. When associated with the doctor's advice, it may help in reducing the desperate desire to drink alcohol or may prevent a person to resume heavy drinking. Another medication is Antabuse, which discourages alcohol users, as it makes them feel bad when they drink alcohol.

However, there is no magic medication which can cure anyone and at anytime. Development of such medications actually constitutes one of the basic priorities of those dealing with alcoholism.

Table. Suggestions for clinical use of medications for giving up smoking

Medications	Side effects	Doses/quantity	Duration
Bupropion SR	1. Insomnia 2. Dry mouth	150 mg every morning for three days	7-12 weeks Until 6 months
nicotine chewing gum	1. mouth sore 2. Dyspepsia	1-24 cigarettes/day: 2 mg chewing gum Over 25 cigarettes a day: 4 mg chewing gum	More than 12 weeks
Suction cups	1. Mouth and throat irritation	6-16 pumps/a day	More than 6 months
Nicotine nasal spray	1. Nose irritation	8-40 doses a day	3-6 months
Nicotine patches	1. Local cutaneous irritation 2. Insomnia	21 mg/24 hours 14 mg/24 hours 7 mg/24 hours	8 weeks
Clonidine	1. Dry mouth 2. Sleepy 3. Dizziness	0.15-0.75 mg/a day	3-10 weeks
Nortriptyline	1. Dry mouth	75-100 mg/a day	12 weeks

1. 2.

Provision of healthcare workers with the proper skills to cope with alcohol and tobacco users is very important. Anyone can provide assistance. People seeking change need this support. Healthcare workers can offer assistance and can also develop a helpful relation with citizens, regardless of what stage of change they are. They can be in the pre-planning stage, in the planning or preparation ones.

PRIMARY CARE AND ADVICE ON THE QUALITY OF NUTRITION

The aim of the primary care for a healthy nutrition is identification of patients with unhealthy nutrition (in terms of unbalanced nutrition) and advice based on their specific profile.

Such a care aims at identifying failure to use to the extent and way as necessary of foods considered to be healthy.

For assessment of other problems related to nutrition, such as for assessment of excess calories or unhealthy foods, refer to the assessment section of body mass index as well as lipids disorders.

With a view to identifying the patients at risk, it is necessary that during the primary care to ask the patient as follows in relation to nutrition over the course of the past three months and afterwards to provide advice to him.

1. Describe what type of fruit and vegetables do you usually consume per day over the past three months?
A healthy consumption includes more than 5 servings per day.
A serving of fruit or vegetables is about 80 gram or:
•An apple, banana, pear or orange
•Two-three plums
•A slice of a large fruit such as melon
•3 tablespoons full of vegetables (raw, cooked, frozen or canned)
•3 tablespoons full of fruit salad (fresh or compote)
•One tablespoon of dried fruit (raisins)
•A plate of salad

•A glass of fruit juice
•A cup of tea (of 15 grains) grapes or cherries

Failure to consume them implies absence in vitamins C, A, folic acid, potassium, magnesium and fiber.

2. Describe what type of protein foods do you usually consume during the day over the past three months?
A healthy consumption includes at least one serving, which is 110 gram of meat, fish, eggs or beans, lentils and peas.
If they are not included, then there is absence in protein, iron, zinc, and vitamin B.

3. Describe what types of dairy-based foods do you usually consume during the day over the past three months?
A healthy consumption includes at least 2 servings wherein a serving is considered 200 ml milk/yoghurt or 50 gram of curd or low-fat cheese.
If these are not included in the daily nutrition, then there is absence in protein, Vitamin A, B12 and B2.

4. Describe how much fish do you consume during a weak over the past three months?
The norm is at least two servings a weak (a serving is of fat sardines, salmon, trout, eel and fresh tuna).
If these are lacking, then there is absence in omega-3, Selenium and Vitamin B12.

5. Describe how much fully fiber-based foods do you usually consume everyday over the past three months?

•Potatoes
•Whole-wheat bread
•Pasta or rice with integral flour
•Full-cereal breakfast

A healthy consumption implies consumption of at least 2 such servings. Failure to consume them implies absence in potassium, magnesium,

micronutrients, folate, B1, B6, C and fiber.

6. Do you have breakfast?

If you do not have breakfast, it is much likely that you consume unhealthy foods and a prospect of being overweight.

Assessment of answers
Scoring   Interpretation
6

5   Excellent. Intake of protein and other nutritional elements is very good. The patient is encouraged to maintain this way of nutrition if he has an IMT within norms and has a low level of salt, sugar and fats (see session on overweight and fats).

Good Nutrition. But the patient has deficiencies in nutrition depending on the food group that he does not use. He should be advised based on deficiencies and be informed on the risks derived from the absence of the nutritional ingredients.
4   The diet is insufficient in some aspects. Strong and specific advice for improvement of diet according to the absence already identified.
0-3   The diet is insufficient in most of the nutritional ingredients. The patient is advised and in extreme cases should be referred to the specialist doctor.

In the event of a positive result, the doctor should take into account the strategy of advice of 5As.

•To assess the dietetic practices and inform the patient that an unhealthy diet constitutes a risk factor for several diseases, such as: CVD, some types of cancer, Diabetes type 2, etc.

•To advise the patient to change his dietetic practices and tell him the benefits deriving from this change.

•To agree with the patient to determine his objectives in order to change his individual diet.

•To help the patient how to overcome obstacles in order to choose a healthy diet, to give him instructions for purchasing and food preparation etc.

•To take care of him, to support him on a regular basis in order to accomplish this type of nutrition throughout the changing process.

Advice for a healthy nutrition:

•Consume a variety and appropriate amount of foods!

•Consume a nutritious diet based on different foods of mainly vegetable origin rather than animal one!

•Consume bread, cereal, rice or potatoes several times per day!

•Consume a variety of vegetables and fruit several times a day (at least 400 gram a day) preferably fresh and domestic ones!

•Maintain your body weight on the recommended limits, IMT of 20-25 (see obesity)!

•Perform moderate physical activity 30 minutes at least in five days of the week! (see physical activity)

•Keep under control the fats consumption (no more than 30 % of daily energy) and replace more saturated fats (animal ones) with unsaturated vegetal oils, olive oil, corn oil, etc.!

•Replace fatty meat with meat products, peas, legumes, lentils, fish, chicken or free-fat meat!

•Use milk and its sub-products (curd, sour cream, yoghurt and cheese), which have low amounts of fat and salt!

•Choose foods with low amount of sugar and consume processed sugar (industrial) and sparingly, by limiting the frequency of sugary drinks and desserts!

•Choose a low-salt amount diet! Total consumption of salt should not be more than a tea spoon (6 gr.) per day including the salt in bread and in the canned foods as well as those processed ones. Use iodized salt!

•If you consume alcohol, the limit consumption should be no more than two glasses or less per day for men and 1 glass or less for women (see alcohol).

•Prepare the food safely and hygienically clean. Boil, bake or cook at the proper temperature!

A healthy orienting diet, according to a nutritional pyramid would be:
Daily consumption:

•No less than 1.5 lit of water per day;

•Cereal three times a day or at every meal, such as whole-wheat bread, corn bread, pasta, brown rice.

•Fruit and vegetables 3-5 times per day as various as possible (once, one serving equal to the size of a fist, example, 1 apple, 1 orange, 2-3 plums, a tea cup of grape or cherry);

•Consumption of a tablespoon of plant oils, especially olive oil, corn oil, sunflower oil, etc.;

•Milk and dairy products with low-fat content, no more than 2 times per day, such as skimmed milk, white cheese, yoghurt, curd;

•Physical activity towards a more active lifestyle for 30 minutes, at least 5 times per week.

Weekly consumption:
•Fish, twice per week;

•Meat and other sub-products two times per week, alternated;

•Beans and other legumes, two times per week;

•Potatoes, two times per week;

•Eggs 2-3 times per week;

•Dried fruit, olives, three times per week;

•Physical activity towards a more active lifestyle for 30 minutes, at least 5 times per week.

Monthly consumption. Use as little as possible during a month:
•Desserts;

•Fizzy drinks;

•Alcoholic drinks in moderate amounts (2 drinks a day for men and one for women);

•Salty foods, canned foods;

•Fried foods;

•Animal fats, butter, margarine, fat etc.;

* Attached also the simplified algorithm

PRIMARY CARE AND ADVICE FOR PHYSICAL ACTIVITY

The aim of primary care for physical activity is identification of patients with inadequate physical activity or sedentarism and advice based on the patient's specific profile.

With a view to identifying this group of patient, it is necessary that during the primary care, to ask the patient in relation to his physical activity carried out during a weak over the past three months and then advise him.

The questions to be used are:
1. What kind of physical activity have you carried out during a week over the past three months?
2. How often have you carried out moderated or intensive physical activity during a week over the past three months?

Definitions:
Physical activity is anybody movement produced by skeletal muscles requiring energy.
Moderate physical activity:
Are called activities which are associated with increase of breathing rate and hard rates, slight sweating, but it is still possible but it is still possible to have a conversation comfortably. An instance is, fast walking.

Intensive physical activity:
Are called activities associated with a heavy breathing and a significant increase of heart beats, difficulty in breathing, increase sweating and finds it almost impossible to speak. An instance is, running or football.

The positive result:
•\Inadequate physical activity: less or four times a week moderate physical activity (30 minutes) or only two times a week intensive activity (20 minutes).

Sedentarism:
Less or two times a week moderate physical activity (30 minutes) or only once a week intensive physical activity (20 minutes).

The advice strategy in cases of positive results.

The doctor should take into account the advice strategy of 5A.
•To assess patient's physical activity in any contact opportunity provided and inform him that failure to carry out physical activity constitutes a risk factor for several diseases, such as: coronary heart diseases, diabetes type 2, colon cancer, breast cancer as well as femoral fractures in the elderly, etc.

•To advise the patient for carrying out regularly the physical activity based on recommendations and tell him about the benefits deriving from the regular performance of physical activity. The recommended advice can be individual or in groups, with a duration from 5 min to 30 min.

•To inform the patient on health benefits from regular performance of physical activity.
- Weight control;
-To reduce the risk of cardiovascular diseases;
-To reduce the risk of diabetes Type 2 and metabolic syndrome;
-To reduce the risk of certain types of cancers;
-To strengthen bones and muscles;
-To improve mental health, mood, loneliness;
-Improves the ability to carry out daily activities and to prevent falling among the elderly.
-Increases the chance to live longer.

•To cooperate with the patient in order to design a joint plan with objectives, to help him overcome obstacles which prevent him perform physical activity, provide him with instructions for exercises and other kinds of physical activity according to relevant conditions.

•To support the patient, to encourage him constantly for performing physical activity and any other slight physical activity.

Recommendations

For the adults aged 18-65,
It is recommended:
30 minutes of moderate intensity physical activity, for 5 days per week;
OR 20 minutes of strong intensity physical activity, for 3 days per week;
OR A moderate equivalent combination/strong activity of physical intensity (150 minutes per week).

For the adults aged over 65,
Recommendations are the same to the ones described above, but for adults aged above 65 is achieved a significant health improvement through ensuring about 30 minutes of moderate intensity physical activity, at least in five days of the week, such as: swimming, dancing, gardening, walking, cycling, home repairs, use of stairs, performing works by hand and exploiting all small opportunities to be active.

The doctor should be realistic to assess in advance the individual's or patient's opportunities prior to advising him/her on dimensions of physical activity, such as: frequency, intensity, time and type of activity.

•If the patient is assessed inactive, but there are no other risk factors, he is recommended and advised for physical activity according to the above recommendations.

•If the patient is assessed inactive, but there are other risk factors (high blood pressure, smoker, high fats in blood stream, diabetes type 2, alcohol abuser, etc.) or has already passed and has chronic disease (myocardial infarction, pulmonary disease, muscular-skeletal disease), a regular physical activity is rather helpful, but it should be done carefully, slowly and according to the above recommendations.

Before starting the physical activity, take into account:

1. Safety

Starting of the physical activity should be gradual and the selection of the type of exercise should be careful.

2. Flexibility

It is advisable to extend the muscles performance at rest (stretching) after the physical activity, in order to avoid impairments or muscle pain of the ligaments and to develop at maximum the mobility of joints of the limbs, back and neck.

3. Resistance

Resistance refers to the ability to continue a physical activity without being out of breath and without resting. The greater the resistance, the better the blood circulation and the more oxygen runs to the vital muscles of organism and the more efficient and slower are heartbeats, making the latter to put up with more in situations where the stress is strong and long-lasting.

The resistance test may be performed by going up of about 20 stairs and continuing a dialog without being out of breath. If the individual is aged over 50, he should be able to run immediately without being out of breath for 2 minutes. For people aged under 50, it would have to last for three minutes.

An important indicator of resistance is the pulse. The maximum pulse which heart can reach is 220 beats per minute, but this maximum is lowered with a less beat for each year of life. Therefore, in order to find the maximum pulse, it is necessary to remove the individual's age from the number 220. During the physical activity, the pulse should be 70 % of the maximum pulse for the individual's age.

Attention, during the exercises, the heartbeats should not exceed the recommended pulse, because not only the acquired would be very low, but also the heart would be put under an undesirable stress! If the individual is a patient who has angina pectoris, high blood pressure, or takes Beta-blockers, the recommended pulse should be even lower than that shown above. A simpler formula for calculating the pulse recommended during a physical activity is as follows:

200 – The individual's age – 40 (40 is replaced with 20 in cases when the individual has achieved his physical form).

For instance, if the individual is 52 years old and without physical experience, the recommended pulse for him would be 200 – 52 – 40 = 108.

4. Pleasure

The physical activity should be considered as a pleasure and is advised to be performed in groups, in order to transform it into a healthy and pleasurable social activity.

Appendix A
The screening test on the use of tobacco and alcohol

The name of the healthcare worker _____. Healthcare Center _____.
District _____.
The name or the patient's number _____Date _____ Gender M – F, Age _____:

The scoring |

Introduction (please read it to the citizen or adjusts it according to the culture of your community). The following questions ask information about the experience of using alcohol, tobacco products during your lifetime and over the past three months. These substances can be smoked

out, swallowed, absorbed (show the card of answers). Be sure that this information is confidential. Before asking the patient, provide him with the answers card of the questionnaire.

QUESTION 1:
During your lifetime, which of the following substances have you used?
a) Tobacco products (cigarette, chewing tobacco, etc.)   No   Yes
b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   No   Yes
If all the answers are negative, ask also this question: "Didn't you try even when you were at school"?
If the answer to all questions is "NO", stop the interview.

If you have even one answer "Yes" to any of the questions, proceed with Question 2 for each substance ever used.

QUESTION 2:
How often have you used the mentioned substances over the past three months?   Never Once or twice Every month   Every week   Every day or almost every day
a) Tobacco products (cigarette, chewing tobacco, etc.)   0   2
3   4   6
b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   0   2
3   4   6
If all the answers to Question 2 are "never", go to question 6.
If any substance is used over the past three months, proceed with questions 3, 4 for every substance used and question 5 for alcohol.

QUESTION 3:
How often have you had a strong desire to use substances over the past three month? Never Once or twice Every month   Every week   Every day or almost every day
a) Tobacco products (cigarette, chewing tobacco, etc.)   0   3
4   5   6
b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   0   3
4   5   6

QUESTION 4:
How often has the substance use cause to your health, social, legal or financial problems over the past three months?   Never Once or twice Every month   Every week   Every day or almost every day
a) Tobacco products (cigarette, chewing tobacco, etc.)   0   4   5   6   7
b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   0   4   5   6   7

QUESTION 5:
How often have you failed in performing those activities you should normally do, due to the use of alcohol during the past three months?
Never Once or twice Every month   Every week   Every day or almost every day
a) Tobacco products (cigarette, chewing tobacco, etc.)

b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   0   5   6   7   8

QUESTION 6:
Have any of your relatives or friends ever expressed his concern about your use of tobacco and alcohol?   No, Never   Yes, over the past three months Yes, but not over the past three months
a) Tobacco products (cigarette, chewing tobacco, etc.)   0   6   3
b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   0   6   3

QUESTION 7:
Have you ever tried to reduce the amount or stop the use of substances, but you have already failed? No, Never   Yes, over the past three months   Yes, but not over the past three months
a) Tobacco products (cigarette, chewing tobacco, etc.)   0   6   3
b) Alcoholic drinks (beer, wine, alcoholic drinks, etc.)   0   6   3

APPENDIX B
Risk assessment
Are you concerned about the use of tobacco?

A | Tobacco
Your risk to have these impairments is (tick one of the risks):

Low0

Moderate   0

High   0

Regular smoking is associated with:
Premature aging and skin wrinkling
Low physical condition and longer time to heal after a flew or cold
Respiratory infections and asthma
High blood pressure and diabetes
Abortion, premature birth and small-weight babies' birth, for pregnant women
Kidney disease
Chronic lung disease
Heart disease, cerebral insult and vascular disease
Lung cancer, mouth cancer or esophagus cancer

B | Alcohol
Your risk to have these impairments is (tick one of the risks):

Low   0

Moderate   0

High   0

Regular alcohol use is associated with:
Drunkenness, aggressive and violent behavior, accidents and impairments, vomiting

Reduction of sexual performance and premature aging

Digestive problems, ulcers, inflammation of the pancreas and high blood pressure

Anxiety, depression, difficulty in relations with others, problems at work as well as financial problems

Difficulty to remember and to solve problems

Congenital defects and brain defects to babies of pregnant women who consume alcohol

Temporary impairment of the brain that leads to memory loss, recognition deficits and disorientation

Cerebral insult, muscles and nerves impairment

Pancreas and liver disease

Mouth cancer, throat cancer, as well as breast cancer

Suicide

APPENDIX C

Risk assessment

The Final Report Card for citizens

The name of the healthcare worker _____. Healthcare Center _____.

District _____.

The name or the patient's number _____Date _____ Gender M – F, Age _____

Scoring for specific substances	Scoring	The risk level
a) Tobacco products	0-3	
4-26		
27 +	Low	
Moderate		
High		
b) Alcoholic drinks	0-10	
11-26		
27+	Low	
Moderate		

High

What do scores imply?
Low: You are at low risk for health problems or other problems arising as a result of your current way of substance use.
Moderate: You are at moderate risk for health problems and other problems related to your way of substance use.
High: You are at very high risk to experience different problems (health, social, financial, legal ones, as well as problems related to relations with others) as a result of your way of substance use. You are very likely to be substance addicted.

Note: The Final Report Card for citizens

The final report card for citizens should be filled out by the healthcare worker with the tobacco and alcohol test results and it should be used to provide the patient with conclusions and advice about substance use. The patient should be encouraged to take the card with him. For each substance used, is given the risk level followed by health problems as well as other problems. The healthcare worker should use the relevant card when he gives it to the patient by associating it with brief interventions.

Chapter 8

HIGH BLOOD PRESSURE

- Clinical data on high blood pressure

- Procedures for measuring the high blood pressure

Blood pressure is a global pressure and is worsening. The world population "is getting older" and age is the most common risk factor for blood pressure. According to an approximate assessment over 1 milliard or 30% of adult world population suffer from blood pressure and this number is expected to increase to 1.56 milliard people in 2025. These figures are available both for developed countries (333 million) and those undeveloped ones (639 million).

Blood pressure is a major problem, encountered in approximately 28% of the population in USA. Most of hypertensive subjects are diagnosed with primary or essential blood pressure. Essential high bold pressure is a hereditary syndrome, which inherits a certain range of physiopathology anomalies, that independently or together lead to increase or blood pressure. Although there are secondary causes among a small percentage of hypertensive subjects, about 50% still represent a large number of patients. In general terms, we divide the secondary causes into renal (parenchymal or renovascular) and endocrine. In some pathology, many cases can be diagnosed by an attentive clinician due to signs and symptoms, which are often clear (eg. feocromocitoma and Cushing symptom). In addition, refractory blood pressure against treatment with antihypertensive might drive the doctor to consider secondary causes. The age and gender of hypertensive patients can be helpful in diagnosis of disorders with secondary etiology. For instance, fibromuscular hyperplasia and Cushing syndrome are more often found in young women, while primary hypothyroidism is more often found in older women.

Finally, conduction of a secondary disorder diagnosis is a necessity because it might lead to significant improvement or in some cases until to fully final treatment of blood pressure.

Blood pressure was defined as values of PAS ↗ 140 mmHg and/or values of PAD ↗ 90 mmHg, based on evidence from randomized studies, resulting that on patients with such values of PA, reductions of inducted PA from treatment are beneficial. The same classification is used in young subjects, middle-aged ones and elderly subjects, while in children and teenagers are adapted different criteria based on percentiles, on which data from interventional studies are not available.

Table 3 Definition and classification of blood pressure levels measured in the clinic (mmHg)a

Category	Systolic		Diastolic	
Optimal	←120	and	←80	
Normal	120-129		and/or 80-84	
High normal	130-139		and/or 85-89	
Hypertension of stage 1		140-159		and/or 90-99
Hypertension of stage 2		160-179		and/or 100-109
Hypertension of stage 3		↗180	and/or ↗110	
Isolated systolic hypertension		↗140	and	←90

The blood pressure category (BP) is determined by the highest BP level, both systolic and diastolic. The isolated systolic hypertension should be classified according to stages 1, 2 or 3 starting from the systolic BP values, by intervals of indicated values.

High blood pressure constitutes a major cardiovascular risk factor. We know that SIZ is twice as frequent in these subjects, while in 60% of cases with IK the actually only cause is considered High Blood Pressure (Arterial Hypertension), while its responsibility goes to 50% of cases with Ischemic Insult and in more than 80% of cases with hemorrhagic insult.

Total cardiovascular risk assessment is slight among special sub-groups of patients, such as those with anamnesis for existing cardiovascular diseases (CVD), diabetes, SAK or with too increased single risk factors. In all these situations, total cardiovascular risk is high or very high, requiring intensive steps, which reduce this risk; however, a large number of patients with high blood pressure do not fall into the above category and their identification into low, moderate, high or very high risk, requires the use of models to assess the KV total risk, in order to be able that, in compliance with them, to judge the therapeutic method.

The risk can be high in:

• Subjects leading sedentary life and those with central obesity (abdominal obesity); relative risk associated with overweight is larger to younger subjects than to older ones.

• Individuals already isolated from social viewpoint and those from ethnic or social minorities.

• Subjects with increased value of fasting glucose and/or an

abnormal test for tolerance to glucose, which do not meet the diagnostic criteria for diabetes.

• Individuals with increased levels of triglycerides, fibrinogen, apolipoprotein B, lipoprotein (a) and with high sensibility to reactive C protein.

• Individuals with family anamnesis for premature CVD (before the age of 55 years for men and 65 years for women).

A further importance was paid to identification of impairment to target and asymptomatic organs, since asymptomatic alterations related to high blood pressure in several organs influence progression of CVD installation, which significantly increases the risk beyond that caused by the simple presence of risk factors.

The initial assessment of a patient with high blood pressure should (a) confirm the diagnosis of the high blood pressure; (b) should detect the causes of secondary high blood pressure and (c) should assess KV risk, impairment of organs and coexisting clinical diseases. This requires measurement of PA, medical anamnesis, including familial anamnesis, physical examination, laboratory examinations as well as other diagnostic tests. Some of the examinations are necessary to all patients; others are necessary only to specific groups of patients.

PROCEDURES FOR BLOOD PRESSURE MEASUREMENT

Confirmation of diagnosis

Measuring blood pressure Currently, in many European countries – although not to all of them – Blood Pressure can no longer be measured using a mercury sphygmomanometer. The auscultatory sphygmomanometer or semi-automatic oscillometric ones are used, instead. These tools should be assessed according to standardized protocols and their accuracy should be checked periodically, through calibration in a technical laboratory. Measurement of BP is preferred to be made in the upper part of the arm and dimensions of the wristband and the wrapping part should be suited to the arm perimeter. In cases of significant and stable change ($\rightarrow$10mmHg) of BP between the arms which carries an increased cardiovascular risk, to be taken in consideration is the

arm with the highest BP values. The change between arms makes sense if it is demonstrated via the simultaneous measurement on the arms; if we observe a change between arms with consecutive measurements, this might be a consequence of BP variability. In elderly subjects, diabetic patients and in other situations on which orthostatic high blood pressure can be frequent or suspected, it is recommended that BP to be measured 1 min and 3 min after the patient is in a standing position. Orthostatic high blood pressure – determined as a PAS reduction with eˆ 20 mmHg or eˆ 10 mmHg of PAD after three minutes in a standing position – has shown that there is a worse prognosis for mortality and cardiovascular events.

If it is possible, automatic recording of BP numerous readings in the clinic, wherein the patient sits in an isolated room, even though he less information in general, can be considered as a method to improve reproducibility and to make that BP values received in the ambulatory centers close to those received by ABPM during the day or HPBM. In addition, BP measurement should be associated with cardiac frequency measurements, because the cardiac frequency values predict independently KV mortality or fatal events in certain situations, including also the high blood pressure. Instructions for a BP correct measurement are summarized as follows:

Measuring arterial pressure in the clinic
When we measure the arterial pressure in the clinic, we should be careful
•   We should allow the patient to have a rest while sitting for 3 – 5 minutes, before starting BP measurement;
•   The arm should be supported and cuff should be on the same level with heart;
•   Clothes should not be narrow to tighten the arm and chest.
•   Blow it through the inflation bulb to stop the pulse, wait about 2 seconds and then release it slowly through the air release valve with 2mmHg/second.
•   The stethoscope should not be pressed hard.
It is necessary to perform at least 2 BP measurements in a sitting position, 1-2 minutes consecutively and other measurements, if the two first measurements result very different. Please take into consideration the average BP if you think so. It is necessary to perform other repeated BP measurements, in order to improve the accuracy of the patient with

arrhythmia, such as atrial fibrillation.

•   We should use a sphygmomanometer with standard wrapping parts around the arm (12-30 cm wide and 35 cm long), but to have also bigger wrapping (for arm perimeter → 32 cm) and a smaller one, for smaller arm perimeter.

•   We should use the wrist band at the heart level irrespective of the patient's position.

•   When you adapt an auscultatory method, you should use stage I and V of Korotkoff (appearance and disappearance of sounds during auscultation), to identify relevantly systolic and diastolic BP respectively.

•   We should use BP on both arms in the first visit in order to tell possible differences. In this case, the arm with the highest BP value shall be considered as a reference.

•   We should measure BP in the first visit after 1 and 3 minutes of standing position for elderly subjects, diabetic patients and in other situation in which the orthostatic hypotension is suspected or frequent.

•   We should measure in the case of BP traditional measurement the cardiac frequency by touching the pulse (at least 30 seconds), after the second measurement on a sitting position.

   BP = Blood pressure (Arterial Pressure)

A special importance has the BP measurement and monitoring outside the clinic, whose priority is that it ensures a large number of BP measurements away from a medical setting, thus reflecting a more reliable current BP assessment than BP in the clinic. BP outside the clinic is usually assessed through ABPM (Ambulatory Blood Pressure Monitoring) or HBPM (Home Blood Pressure Monitoring), usually through measurements performed by the patient himself. Both types of monitoring are supported by several principles and general suggestions in addition to other recommendations for BP measurement in a certain clinic.

•   The patient should be clearly explained on the relevant procedure, both through verbal instructions as well as written ones; In addition, BP self-measurement requires good training under the supervision of the medical staff.

•   Interpretation of results should take into consideration that

reproducibility of BP measurements outside the clinic is rather good for a BP averages during 24 hours, day and night, but not so good for shorter periods within 24-hours interval and for more complex indicators deriving from these measurements.

• ABPM and HBPM provide somehow different information related to the BP situation of the patient and his risk and therefore both methods should be considered as complementary, rather than competitive or alternative ones. Compliance between ABPM and HBPM measurements is from strong into moderate one.

• BP assessed in a clinic is usually higher than the ambulatory one and BP assessed at home and this change is increased with the BP increase assessed in the clinic.

• Tools should be assessed and adapted to the international standardized protocols; they should also be properly maintained and regularly calibrated; at least every six months.

Ambulatory blood pressure monitoring is performed by placing on the patient a portable tool to measure BP, usually in the non dominant arm, for a period of 24-25 hours, in order that it provides information on BP during daily activities and at night while sleeping. The patient is instructed to be involved in the normal activities, but to avoid heavy physical exercise and at the moment of inflating the wrist band, he should stop movements and speaking and should also keep his arm in a fixed position and the wristband at the heart level. The patient is required to record the relevant information in a diary, as regards the symptoms and events that might influence BP, including also the time of using medications, consumption of meals, as well as the time when he goes to sleep and wakes up. In the clinical practice, measurements are often performed in 15 minutes intervals during the day and every 30 minutes throughout the night; It is necessary to avoid long intervals between BP readings, because they lower the accuracy of BP 24-hour assessments. These measurements are automatically uploaded in the computer and they can be used to carry out a certain range of analysis. At least 70 % of BP values during the day and night should be acceptable measurements or otherwise, monitoring should be resumed. It is important to know that relevant reading might not be accurate when the cardiac rhythm is very abnormal.

Home blood pressure monitoring usually covers BP self-assessment but in some patients it may be necessary to have a healthcare worker or a family member already present. Currently, tools placed on the wrists are not recommended but their use can be justified to obese subjects, with a very high arm perimeter. For a diagnostic assessment, BP should be assessed every day for at least 3-4 days and preferably for 7 days consecutively; both in the morning and in the evening. BP is measured in a quiet room, the patient is on a sitting position, his back and his arm are well positioned, after five minutes stay in quiet and doing two measurements for each case, performed at a distance 1-2 minutes from each other. After each measurement, the relevant results are recorded in a standardized diary. However, BP values reported by the patient may not be reliable, which can be solved by keeping them into a certain device that has a memory unit. Home-measured BP is the average of these measurements, with the exception of the first day of monitoring. A further advantage could be the use of telemonitoring and smartphone applications for HBPM. Interpretation of the result should always be performed under the doctor's care. When compared with BP assessed in the clinic, HBPM provides numerous measurements over several days or even longer periods, carried out in the individual's usual environment. Compared with the ambulatory BP, it ensures measurements for longer periods and BP variability day by day, is less costly, is available to a greater extent and is more easily repeated. However, unlike ABPM, it provides no BP data during routine activities day by day and while sleeping, or quantitative assessment of BP short term variability.

BP assessed in a clinic is usually higher than BP assessed outside the clinic, a fact which is attributed to the reaction from concern, anxiety and/or responds conditioned to the unusual situation, wherein return to the original condition can play a certain role. Although in the BP modulation assessed in the clinic and outside it, can be included a certain number of factors, the difference between both of them usually refers to – although sometimes incorrectly – "white coat (doctor's presence) effect", where as "hypertension from white coat" or "isolated in a clinic" or "clinic isolated high blood pressure", refers to the situation in which BP is increased in the clinic in several repeated visits and is normal outside the clinic, both in ABPM and in HBPM. On the other hand, BP can be clinically normal

and it can be high outside the medical setting, which is called "masked" or "isolated ambulatory hypertension". The terms "true" or "stable normotension" and "confirmed high blood pressure" are used when both types of BP measurement are respectively normal and abnormal. While limit values for BP assessed in a clinic is the standard value 140/90mmHg, most of studies on high blood pressure caused due to white coat effect or on that masked one, have used a limit value of 135/85mmHg for BP assessed outside the clinic during the day or at home and 130/80 mmHg for 24 hour BP. Certainly, there is only a moderate agreement between the definition of the diagnosis of high blood pressure by the doctors or the masked one through ABPM or HBPM. It is recommended that terms "high blood pressure due to white collars" and "masked hypertension", to be reserved in order to determine the untreated individuals.

White coat hypertension has an overall prevalence averaging to 13 % (interval 9-16%) and may reach approximately to 32 % (interval 25-46%) among hypertensive subjects. Factors related to the increased prevalence from white coat hypertension are: age, female gender, and abstinence from smoking. Prevalence is lower in cases of impaired target organs or in cases when BP assessed clinically is based on repeated measurements, or when it is measured by a nurse or another healthcare worker. Prevalence is also related to the BP level assessed clinically. For instance: Percentage of white coat hypertension amounts to approximately 55% in the case of hypertension of stage 1 and only in about 10 % in hypertension of stage 3. It is recommended that the diagnosis of white coat hypertension be confirmed within 3-6 months and these patients be examined and closely attended, including repeated BP measurements outside the clinic.

Masked hypertension has a prevalence averaging to 13 % (interval 10-17 %). Various factors can increase BP outside the clinic related also to the BP assessed in a clinic, such as young age, male gender, smoking alcohol consumption, physical activity, hypertension driven by physical activity, anxiety, stress at work, obesity, diabetes, SKR, family anamnesis for hypertension and prevalence is higher when BP assessed in a clinic is in the upper high limit. The masked hypertension is often related to other risk factors, asymptomatic organ impairment and increased risk for diabetes and confirmed hypertension.

Disease anamnesis should include the time of the first diagnosis of high blood pressure (arterial hypertension), current measurements and the previous BP measurements as well as current medications and previous anti-hypertensive ones. Special attention should be paid to indications of secondary causes of hypertension. Females should be asked about hypertension related to their pregnancy. Hypertension is translated into increased risk of renal complications and KV (SAK; cardiac insufficiency; cerebrovascular accidents; PAD; KV Death), especially when associating diseases are present. However, it is important to obtain from all patients a careful history of cardiovascular diseases in order to allow the KV global risk assessment, where are included associating diseases such as: diabetes, clinical signs or an anamnesis of cardiac insufficiency, SAK or PAD, cardiac valve diseases, palpitations, syncopal episodes, neurologic disorders, with an emphasis on insult and transient ischemic attack (TIA). An anamnesis of SRK should include the type and duration of renal disease. It is necessary to require data for abuse with nicotine and potential dyslipidemias. A family anamnesis of premature hypertension and/or premature CVD is the first important indicator of family predisposition (genetic) to hypertension and CVD and also can encourage performance of genetic tests indicated by the clinic.

Physical examination is intended to determine or verify the diagnosis of hypertension, to determine the current BP, to screen for secondary reasons of hypertension and to improve KV global risk assessment. BP should be measured according to the above instructions and measurements should be repeated in order to confirm the diagnosis of hypertension. It is necessary to measure at least in one visit BP in both arms as well as changes between arms of PAS$\rightarrow$20mmHg and/or of PAD$\rightarrow$10mmHg – if confirmed – should encourage further examinations of vascular anomalies. For all patients, it is necessary to carry the auscultation of carotid arteries, heart and renal arteries. Sounds should suggest further examination (Ultrasonography of the carotid, echocardiography, vascular renal eco, depending on the localization of the sound). It is necessary to measure the weight, height and waist circumference, when the patient is in a standing position and it is also necessary to calculate BMI. The pulse palpation and heart auscultation can detect arrhythmia. It is necessary

that to measure the cardiac frequency while the patient is at rest and this should be done for all patients. An increased cardiac frequency shows an increased risk for cardiac diseases. An abnormal pulse should make us suspect for atrial fibrillation, including atrial fibrillation without clinical symptoms.

Laboratory examinations are carried out to provide data on the presence of additional risk factors, to search for secondary hypertension and to control for the absence or presence of impairment of target organs. Examinations should be carried out in term, from the simplest to those most complicated, as shown in the following table.

Laboratory examinations
Routine examinations

•Hemoglobin and/or hematocrit

•Fasting glycaemia

•Total cholesterol, LDL-cholesterol, HDL-cholesterol in blood stream

•Fasting triglycerides in blood stream

•Potassium and sodium in blood stream

•Uric acid in the blood stream

•Creatinine in the blood stream (with assessment of GFR)

•Urine analysis: microscopic examination; urinary protein through litmus paper test; micro-albuminuria test

•12-Lead ECG
Additional examinations, based on anamnesis, physical examination and relevant data from routine laboratory examinations

•Hemoglobin A1C (if the fasting glycaemia is→5.6 mmol/L(102mg/dL) or we have confirmed the diagnosis of the diabetes)

•Quantitative proteinuria (if the litmus paper test is positive); concentration of potassium and sodium in urine and their ratio

•24-hour BP home monitoring and ambulatory monitoring

•Echocardiogram

•Holter monitoring in the case of arrhythmia

•Testing in physical activity

•Carotid echo

•Peripheral artery echo/abdominal echo

•Pulse wave velocity

•Ankle-brachial index

•Fundoscopy
Extensive assessment (mainly specialist competence)

•Further research on cerebral, cardiac, renal and vascular impairments

•Research for secondary hypertension, when suggested from anamnesis, physical examination or routine and additional tests

•BP=Blood pressure; ECK = Electrocardiogram; GFR = Glomerular filtration velocity

Research on secondary forms of hypertension

A specific cause, potentially redeemable of increased BP can be identified in relatively small percentage of adult patients with hypertension. However, because of high general prevalence, secondary forms can affect millions of patients worldwide. If patients are properly diagnosed and treated, those with a secondary form of hypertension can be cured or at least, show an improvement in the DP screening and reduction of KV risk. Accordingly, as a preventive measure wisely selected, all patients should carry out a simple screening for secondary forms of hypertension. This screening can be based on the disease anamnesis, physical examination as well as common laboratory examinations. In addition, a secondary form of hypertension can be indicated by a significant BP increase, sudden appearance of hypertension worsening, bad BP responds to the medications therapy and impairment of target organs disproportionate to the duration of hypertension. If the preliminary examination leads to suspicion that the patient suffers from a secondary form of hypertension, specific diagnostic procedures can be necessary for each of them. Diagnosis of secondary forms of hypertension, especially in cases suspected of endocrine hypertension should preferably be carried out in the reference centers.

Assessment of target organs impairment

In view of the importance of asymptomatic impairments of target organs, as an intermediate stage in the continuity of vascular disease as a determinant of KV general risk, if affected, should be carefully searched for symptoms of affecting the organ via required techniques. It is important to know that the risk is increased while the number of impaired organs is increased as well.

Heart

A 12-Lead ECG should be part of routine assessment of all hypertensive patients. Its sensitivity in detecting the left ventricular hypertrophy (LVH) is low but nevertheless it can be used, also, to detect patterns of ventricular

overload, which shows a higher risk, ischemia, anomalies of conduction, dilatation of the left atrium and arrhythmia, including atrial fibrillation. When it is suspected of arrhythmia and possible ischemic episodes, 24-hour Holter electrocardiogram is indicated. The atrial fibrillation is a very frequent and usual cause of KV complications, especially insult, of hypertensive patients. Early detection of atrial fibrillation would facilitate prevention of insult starting with the required therapy with anticoagulants, if indicated.

Echocardiography is more sensitive than electrocardiogram to diagnose LVH and is useful to improve KV and renal risk assessment. For this reason, it can help in a more precise stratification of the general risk and in determining the relevant therapy. In the clinical practice, echocardiography should be taken into consideration to the hypertensive patients in different clinical contexts and with different purposes: In hypertensive patients with moderate total KV risk it can improve risk assessment through undetected LVH from ECG; In hypertensive patients with LVH symptoms in ECG it may assess more accurately in terms of quantitative aspect the hypertrophy and determine its geometry and risk; In hypertensive patients with cardiac symptoms, it may help to set the diagnosis of the basic disease. It is clear that echocardiography including the assessment of ascending aorta and vascular screening, may have important diagnostic value in most of the patients with hypertension and it should ideally be recommended in all hypertensive patients in the initial assessment. However, a more extensive or a more limited use of echocardiography depends on the availability and cost.

Blood vessels

Ultrasonographic examination of carotid arteries through the measurement of the intima media thickness (IMT) and/or the presence of plaque, has shown that it predicts the emergence of insult and myocardial infarction, regardless of traditional risk factors. Connection between IMT of carotid arteries and KV events is constant and determination of a threshold value for high KV risk is more arbitrary. Even though the presence of the plaque has a strong independent preventive value for KV events, the presence of

the plaque and IMT increase in carotid have added a little to each other the risk for KV events and to reclassify the patients into another risk category.

The large artery stiffening and the wave reflection phenomenon are identified as the most important physipatological determinant of ISH and the pulse pressure is increased with aging. The wave velocity of carotid-femoral pulse is "a golden standard" for assessing aortal stiffening. The aortal stiffening has an independent predictable value for KV fatal and non fatal events in hypertensive patients.

Kidney
The diagnosis of renal impairment driven by hypertension is based on detection of a renal reduced function and – or detection of increased renal extremity of albumin. While an increased concentration of serum creatinine or a low GFR show that the renal indicate that the renal flow is lowered; the indicator of an increased percentage of albumin in urine or of protein extremity, in general shows a disorder in the barrier of glomerular filtration.

Both in the patients or general population and diabetic ones, simultaneous existence of protein increased extremity in urine and a reduced GFR, indicates a higher risk of KV and renal events than both anomalies taken separately, making these risk factors independent and cumulative. We can say that the indication of a damaged renal function in a hypertensive patient constitutes a very strong and frequent predicting value of KV events and death for KV causes in the future. Accordingly, it is recommended that in all hypertensive patients to assess GFR and perform a microalbuminuria test in a urine sample.

Eyes
Assessment of hypertensive retinopathy through via fundoscopy has prognostic significance in hypertensive patients. The retinopathy of grade III (haemorrhage of retina, microaneurysms, strong exudates and points like snowflakes) and retinopathy of grade IV (signs of grade III and papilledema and/or macular edema) are indicators of severe hypertensive

retinopathy with a high predicting value on mortality. Retinopathy of grade I (arteriolar narrowing, both of focal nature and general one) and retinopathy of grade II (arteriovenous crossings) reveal early stages of hypertensive retinopathy and the predictive value of KV mortality is reported in a contradictory manner and generally less accurate.

Brain

Hypertension, in addition to the widely known effect on appearance of clinical insult, is also related to the risk for asymptomatic brain impairments noted in cerebral MRI, particularly in elderly individuals. Availability and considerations on costs do not allow a mass use of MRI in assessing hypertensive elderly individuals, but it is necessary to seek for hyper intensity of white matter and silent brain infarction in all hypertensive patients with nerve disorders, particularly, those with memory loss. Given that cognitive disorders in the elderly are at least partly related to hypertension, in clinical assessment of elderly patient with hypertension can be used suitable examinations.

Research on organs asymptomatic impairment, cardiovascular diseases and chronic renal diseases

Heart:

An ECG is recommended to all hypertensive patients to detect LVH, left atrium dilatation, arrhythmia or heart related diseases.

To all patients with an anamnesis or physical examination, which suggests major arrhythmia, it should be taken into consideration a long term monitoring with ECG and in cases of arrhythmias driven by physical activity an exercise test via ECG.

It should be taken into consideration an echocardiogram to determine the KV risk and please confirm via ECG the diagnosis of LVH, left atrium dilatation or suspected accompanying heart disease, when these are

suspected.

Whenever anamnesis suggests myocardial ischemia, it is recommended an exercised test via ECG and if it results positive or suspicious, it is recommended an imaging examination under stress situation (stress echocardiography, stress cardiac magnetic resonance imaging, or nuclear scintigraphy).

Arteries:

It should be considered ultrasound examination of carotid arteries in order to detect vascular hypertrophy or asymptomatic atherosclerosis, particularly in the elderly.

The wave velocity of carotid-femoral pulse should be considered in order to detect the large artery stiffening.

Kidneys:

Measurement of serum creatinine and GFR assessment is recommended for all hypertensive patients.

Urine protein assessment is recommended for all hypertensive patients.

It is recommended microalbuminuria assessment in the urine sample and related to the extremity of urine creatinine.

Eyes:

Examination of the retina should be considered in hypertensive patients with hypertension, which is difficult to be screened or resistant, in order to detect haemorrhage, exudates and papillary edema, which are associated with increased KV risk.

Brain:

In hypertensive patients with decreased cognitive abilities, to be considered is cardiac magnetic resonance imaging or computerized tomography in order to detect silent brain infarction, lacunar stroke, microhaemorrhage and white matter lesions.

Treatment

Initial treatment should include non-pharmacological methods such as weight loss, increased fruit consumption, fresh vegetables and low-fat products (DASH diet), physical activity, limitation of salt and avoiding tobacco and alcohol. This is in accordance with AHA (American Heart Association) recommendations, which maintains that patients with systolic arterial pressure from 130-139 mmHg or diastolic arterial pressure from 80-89 mmHg, initial treatment consists of non-pharmacological methods. If the arterial pressure target is not achieved after three months, it is necessary to start treatment with pharmacological agents. Strict implementation of non-pharmacological therapy may lead to subsequent reduction of the doses or the number of anti-hypertensive preparations.

Lifestyle appropriate changes constitute a corner stone for prevention of hypertension. They are also important for treatment of hypertension, although the beginning of medication therapy to high risk patients should never be delayed. Clinical studies show that the BP reduction effects from lifestyle objectified modifications can be equal to medication monotherapy, although the greatest barrier is the low level of implementing measures over the time, a fact which requires special actions to be overcome. The lifestyle required changes can delay safely and effectively or prevent hypertension in non-hypertension subjects; they can delay the start of therapy or prevent the medication therapy in hypertensive patients of stage I and contribute in reducing BP in hypertensive individuals already treated under medication therapy, allowing reduction of anti hypertensive medications number and doses. In addition to reducing BP effects, lifestyle changes contribute to the control of other risk factors and clinical

conditions.

The recommended measures of lifestyle which have shown to be capable of reducing BP are: a) the restriction of salt, b) modification of alcohol consumption, c) high consumption of vegetables and fruit and free-fat diet, d) reduction of body weight and maintenance of normal body weight and e) regular physical activity. In addition, it is compulsory to insist on giving up smoking in order to improve KV risk and also because smoking has an acute effect in BP increasing, an effect which might increase ambulatory BP during daytime.

a) It is recommended reduction of salt amount in a diet, 5-6g per day.

b) Modification of alcohol consumption in no more than 20-30 g ethanol per day for men and no more than 10-20 g ethanol per day for women.

c) It is recommended additional daily consumption of vegetables, fruit and low-fat products.

d) It is recommended reduction of weight in BMI 25 kg/ m2 and of waist circumference in ← 102 cm for men and ← 88 cm for women, except when this is anti-indicated.

e) It is recommended to perform regular physical exercises, namely at least 30 minutes with moderate dynamic exercises in 5 to 7 days per week.
f)It is recommended to provide advice to all smokers in order to give up smoking and to provide assistance to them.

LIFESYLE MODIFICATION FOR TREATMENT OF HYPERTENSION1

Modification   Recommendations   Average reduction of systolic TA
Weight reduction   Maintenance of normal body weight IMT 18.5-24.9 kg/m2 5-20 mm Hg for weight loss of 10 kg
Use DASH diet Consume diets rich in fruits, and vegetables and poor in fats, especially animal ones   8-14 mm Hg
Salt reduction Reduce intake of salt in ← 100 mmol/day   2-8 mm Hg
Physical activity   Activities (aerobic exercises or fast walking) almost

daily at least 30 min per day   4-9 mm Hg

Alcohol   Limit consumption at a maximum of 2 drinks2 for males and 1 drink for females and individuals of small weight   2-4 mm Hg

1 Stop smoking is another absolute recommendation for minimizing KV risk.

22 Drinks = 100 ml ethanol, 700 ml beer, 300 ml wine, 3 ox whiskey

When pharmacological treatment should be started

a) It is recommended immediate start of medication therapy in individuals with hypertension of stage 2 and 3 at any cardiovascular risk level a few weeks after or simultaneously with the onset of life style changes.

b) It is also recommended BP reduction through medications when cardiovascular total risk is high because of organ impairment, diabetes, CVD or SRK, even when hypertension is in the stage 1.

c) It should also be considered on set of therapy with anti-hypertensive medications in patients with hypertension of stage I with low risk up to moderate risk, when BP is at this level in some repeated visits or it is high according to the ambulatory BP criteria and remains at this level despite a sufficient time period associated with measures for lifestyle change.

d) Medication treatment is recommended in hypertensive elderly patients when PAS is eTM 160 mmHg.

e) Anti-hypertensive medication treatment can be also considered in the elderly (at least when they are aged under 80) when PAS is in the interval 140-159 mmHg, suggesting that anti-hypertensive treatment is well tolerated.

f) In addition to the case when necessary data is ensured, it is not recommended starting anti-hypertensive medication therapy for high normal BP.

g) The lack of data prevents also recommendation to start anti-hypertensive medication therapy in young individuals with isolated increase of brachial PAS, but these individuals should be closely attended with recommendations on lifestyle.

Objectives of blood pressure in hypertensive patients

a)An objective of PA ← 140 mmHg:

•Is recommended in patients with moderate low KV risk;
•Is recommended in patients with diabetes;
•Should be considered in patients with insult or previous TIA;
•Should be considered in patients with SAK;
•Should be considered in patients with diabetic and non-diabetic SRK.

b) In elderly patients with hypertension, younger than 80 years old, with PAS eTM 160 mmHg, there is strong evidence to recommend PAS reduction between 150 and 140 mmHg.

c) In elderly patients who enjoy good health, younger than 80 years old, it is possible to consider values of PAS ← 140 mmHg, while in the more vulnerable elderly population, PAS objectives should be suited to individual tolerability.

d) In individuals older than 80 years old and with initial PAS eTM 160 mmHg, it is recommended PAS reduction between 150 and 140 mmHg making sure that they enjoy physically and mentally good health.

e) An objective of PAD ← 90 mmHg is always recommended, except for patients with diabetes for whom is recommended the value ← 85 mmHg. However, we should take into consideration that PAD values between 80 and 85 mmHg are safe and well tolerated.

What will we do when we find during screening high BP figures? (Practical data)

In case of detecting BP high figures, from its correct measurement by the nurse, the patient immediately refers to the family physician for a more accurate assessment and further follow-up.

If the high blood pressure (arterial hypertension) is confirmed by the physician, the patient will then be assessed on the way of medical treatment and follow-up depending on BP figures, the age of its onset as well as the patient's age at the moment when increased BP was observed. In this case, the patient will be assessed also for the presence of other risk factors, such as dyslipidemia, diabetes, smoking, obesity, heredity, etc.

In the absence of other risk factors, and for BP figures of first stage, it is recommended that the patient keeps diet by reducing the amount of salt, fats, alcohol reduction, use of vegetables and fruit and physical activity for at least 45 minutes a day. Patients should be put under this nutritional regime and should be screened after three months and if blood pressure is $\rightarrow$ 140/90 mmHg, it is necessary to start the medication therapy; if BP figures are $\leftarrow$ 140/90 mmHg, it continues the same regime.

In subject with HTA of second stage and beyond, the medication therapy starts regardless of whether or not other risk factors are present.
Patients with HTA, in most of the cases, are treated by the family physician and they are referred to the specialist doctor in clearly defined cases. What are these cases? Patients affected in target organs, namely with heart, kidney, and blood vessel impairments which might need a more complex assessment of the situation through examinations which are not performed by the family physician. It can and should also be referred to the specialist for patients with HTA and other major risk factors and/or associated diseases, such as: Diabetes Mellitus, chronic renal disease or peripheral vascular disease.

Another group of patients to be referred to the blood pressure specialist are patients who may have a secondary form of it.

When should we suspect of a secondary HTA?

Secondary hypertension should be sought when dealing with hypertensive subjects younger than 45 years old without a history for Blood Pressure heredity, in cases with HTA at young ages within a certain family and in cases with Cerebral Insult at a young age within a certain family.

In addition, it is necessary to consider the secondary hypertension in cases when objective examination reveals problems, such as systolic noise in the periumbilical region, which corresponds to projection of renal arteries, in cases suspected of endocrine HTA, in cases of Hypertension with paroxysmal crisis and in cases of aggravation or resistance to treatment of a blood pressure that had been well controlled, but which responds to the therapy unexpectedly.

In addition, it is necessary to refer to the specialist cases with resistant hypertension to treatment.

Resistant hypertension are considered situations when despite the use of three preparations with maximum doses or of the maximum doses supported by the patient, out of which one should be diuretics with adequate dose, and the blood pressure remains → 140/90 mmHg.

In these cases it is advisable to associate the patients to the blood pressure specialist in order to exclude or confirm a HTA secondary form and to try to place the most aggressive schemes of treatment.

SUGGESTION ON COMBINATION OF SUBJECTS TREATMENT WITH IMPAIRMENT OF TARGET ORGANS

Suggestion on combination of treatment according to the diagnosis

Compulsory indication[1]	Diuretic	BB	ACE inh	ARB	Ca block	Ant. Ald
Cardiac insufficiency	x	x	x	x		x
Post IM		x	x		x	
Coronary Sem	x	x	x		x	
Diabetes	x	x	x	x	x	
Chronic renal disease[2]			x	x		
High risk for cerebral accidents	x		x			

1Compulsory indications in combinations of anti-hypertensive patients are based on benefits derived from these combinations and confirmed during studies.

Chapter 9

APPENDIXES

• Invitation on performing primary care for citizens aged 40-65.

• Explanatory Appendix for the patient/taking FOBT sample.

• Information about the beneficiary of the primary care package for citizens aged 40-65.

• Assessment questionnaire to the patient's satisfaction.

• The monitoring forms.

NVITATION ON PERFORMING PRIMARY CARE FOR CITIZENS AGED 40-65

DISTRICT............................   H E A L T H C A R E
CENTER......................

MUNICIPALITY...........................
ADDRESS...

COMMUNE................................   TELEPHONE NO...................
....

Dear Mr/Mrs...................

You are invited to appear at the Healthcare Center .... in one of the dates of your birth month _ _/_ _/201_; _ _/_ _/201_; _ _/_ _/201_ from 7.00 – 12.00, to carry out procedures of Primary Care for citizens aged 40-65. Attached, you will also find information related to the importance of this test about your health. The test and the procedure of drawing blood for analysis will last about 30 minutes.

Please contact with the healthcare center staff the day you will appear to perform the test. The doctor and the nurse will provide you with more information and will help you to complete your checkup.

All the necessary tools to take the blood and urine analysis will be available at the Healthcare Center. In order to take as accurate results as possible, you should appear at the Healthcare Center without consuming food for at least 9 to 14 hours prior to performing the analysis.

The Family Physician at your Healthcare Center will inform you on the periodic checkup and on the results of analysis received by the Clinical-Biochemical laboratory.
We hope you will pay due importance to the performance of the checkup and will appear on the specified time.

The entire Primary Care package is free of charge, irrespective of whether or not you are provided with health insurances.

If you cannot appear at the scheduled day and time, upon receipt of this information, please contact in advance with the family nurse or the cabinet of the Periodic Checkup at the Healthcare Center, whom you may ask a more appropriate date to carry out the relevant procedures.

Sincerely, Dr. ....
Director of the Healthcare Center
Signature, Seal of Director or FP and HC
Date, ...

Explanatory appendix for the patient

Method of sample collection

The stool sample should be taken by the patient at home, who takes it with him to the scheduled day for the visit at the healthcare center.

The stool sample can be collected directly from the toilet, through a toilet paper or clean container. Use the bottle spoon with threaded lid, included in the FOBT kit, intended for this purpose and take sample from about 5 stool parts.Close the lid with the spoon attached to it and shake the bottle well until it has achieved a complete dilution of the stool material with the extracting buffer which is inside the bottle.

Put on the tube label the full name and time of taking the stool sample.

NURSING DATA FOR THE BENEFICIARY OF THE PRIMARY CARE PACKAGE FOR CITIZENS AGED 40-65

What is the primary care and why is it useful?

You should know that every individual, no matter how healthy, at a certain stage of his life (since at the middle age), is posed to risk from diseases such as those of heart and blood vessels, brain stroke, diabetes, kidney diseases, some forms of dementia, depression, etc. The emergence of these diseases may also be favored by other factors related to the lifestyle, stress, family heredity, etc. The checkup accomplished through this compulsory package for individuals aged 40-65, is intended to help in reducing the risk which develops these common and dangerous diseases, but which currently can be prevented.

If you are 40-65 years old, you will take notification and certain instructions by mail or telephone from the Family Nurse, regarding your appearance to carry out the relevant screening once a year, at a timeline specified (2-3 days) within your birth month. This will help you to face procedural facilities, the waiting period to be as short as possible and planned. What is more important, if you have problems with your health, you should be diagnosed and treated in accordance with all rules by the family physician who covers your healthcare service provided by the Healthcare Center near the area you live. The nursing staff providing the service of Primary Care Compulsory Package for individuals aged 40-65, is professionally capable and trained on all elements included in the relevant package of this service.

During the screening, your risk for disease will be assessed through some simple tests and standard questions on your lifestyle, your eating habits and medical history of your family. You will be provided with personalized advice and assistance in order to reduce the risk of diseases and to lead a healthy life as much as possible. These will include advice on certain small changes but important ones on the nutrition regime, or on the type of physical activity necessary to perform based on your health situation and risk level already observed. If it is found that you are posed to high

level risk, you will be subject to the necessary medical assistance, such as medications that control blood pressure, diabetes, or kidney diseases, associated with instructions on weight loss, giving up smoking, keeping alcohol under control, etc.

It is advisable for all individuals who may benefit, to take advantage of their opportunity to screen their health situation, to appear at the scheduled time in order to receive the service offered by the healthcare center through this annual routine screening package. This implies that you should be attentive and act early, in order to improve your health significantly and in due time, and in order to enjoy a better and longer life. Small and continuous lifestyle changes can make a big difference between a patient and a healthy individual.

Meanwhile, if you have health-related problems, do now wait the period specified to take advantage of the Primary Care package, but immediately go to the healthcare center and contact with the nurse and family physician as usually.

What happens during the primary care performance?

The nurse will inform you in detail about all the testing you will perform. The screening procedure is divided into two parts. First you will answer to some simple questions made by the nurse and you will carry out some common healthcare checkups that cause no pain and worries. These tests and completion of the questionnaire will make it possible to assess your healthcare situation and determine whether or not there is any risk for disease.
The screening will last 30 minutes.

•You will answer to certain simple questions about your family healthcare history, whether you smoke or the quantity of your alcohol consumption per day;
•The nurse will measure your body height and weight;
•He/she will assess and record the body mass index (BMI), which shows whether your body weight in normal in proportion to your height;

•He/she will record your age, gender, profession, nationality, etc.

•He/she will measure your Blood Pressure;

•He/she will draw venous blood via non-painful methods in order to carry out clinical and biochemical analysis in certain laboratories.

•He/she will take samples of saliva, urine, and stool in order to carry out the relevant tests;

•You will be provided with useful advice on everything mentioned regarding health and a healthy lifestyle.

Following this stage, you will expect the test results. Upon the receipt of analysis results you have already performed, they will be sent to your family physician and he will inform you on the analysis results and their significance. You will have the opportunity to require instructions and the support of medical staff related to the maintenance of your health, advice on lifestyle changes that will be helpful to improve your health. If necessary, the family physician will provide you with the opportunity to receive medications, he will recommend further checkups to the specialist doctors, second level examinations, etc.
You may also ask the support of medical staff in order to give up smoking, alcohol, to improve your physical activity, nutrition, etc. In addition, you will be informed with regard to the next screening.

ASSESSMENT QUESTIONNAIRE

The individuals' satisfaction for having access to primary care package for citizens aged 40-65.

Dear citizens!

Write down your impressions or remarks with regard to your expectancy during the compulsory primary care for citizens aged 40-65. The information received will be useful to us to improve our work!

1.   Admission by the nurse

-Good admission   0

-Relatively good admission   0

-No good admission   0

2.   Did the nurse inform you on the screening?

-Very clarifying information   0

-Not very good information   0

-No information about procedures   0

3.   Were your answers given proper attention during the questionnaire?

-Yes, the nurse listened to me attentively   0

-Questions were not clear   0

-The nurse didn't ask about healthcare problems   0

4.   Was the blood drawing procedure painful to you?

-No, it wasn't painful   0

-The nurse was not accurate in finding the vein   0

-It was painful, but the nurse quieted me   0

5.   Was the primary care service worth and did your Periodic Screening Package meet your expectancy?

-Yes, it was worth   0

-It was worth, but certain things should be improved   0
-
No, it wasn't worth at all   0

What should be improved (briefly)?

....
....

Thank you for your time!

"Monitoring means collection
and routine analysis of information
to assess the progress against objectives set
and to verify compliance with standards"

The general monitoring scheme is as follows:

In order to monitor the screening process, intended to detect and channel towards the path of specialized treatment as well as monitor the patients' progress suffering from depression, it is necessary to report on the following indicators:

No.   Objective   Activity Indicator   F o r m   o f   I n d i c a t o r   Resource of Information   Frequency of reporting
1   Screening of all individuals aged 40-65 of the respective area in relation to depression   Interviewing of individuals for depression   Number of individuals interviewed for depression/individuals aged 40-65 of the respective area - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

2   Assessment of depression prevalence   Application of criteria for determining Depression   Individuals diagnosed with Depression/ interviewed individuals   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

3   Prevalence of Unipolar Depressive Disorder (UDD)   Application of criteria for determining Depression   Individuals diagnosed with UDD/ individuals with Depression or interviewed individuals   -   Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

4   Prevalence of Dysthymic Disorder   Application of criteria for determining Depression   Individuals diagnosed with UDD/individuals with Depression or interviewed individuals   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

5   Reference of all patients with Depression to the respective services   Orientation of patients according to the protocol
Number of individuals with Depression referred to the specialist/ individuals with Depression   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

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The general monitoring scheme is as follows:

In order to monitor the screening process, intended to detect diabetes type 2 in its sub-clinical stage to modify the lifestyle as well as early treatment for reducing the complications risk from diabetes, it is necessary to report on the following indicators:

No.   Objective   Activity Indicator   F o r m o f I n d i c a t o r
Resource of Information   Frequency of reporting
1   Screening of all individuals aged 40-65 of the respective area in relation to diabetes type 2 (D2)   Interviewing   of   individuals   for presence of risk factors for D2   Number of individuals interviewed on risk factors for D2/individuals aged 40-65 of the respective area - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

2   Assessment of individuals' prevalence posing high risk for D2 Interviewing of individuals with high risk for D2 based on the protocol Individuals resulting with high risk for D2/interviewed individuals   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

3   Management of individuals with high risk for D2   Orientation of patients posing risk for D2 according to the protocol   The   number of individuals posing risk for D2 referred to the specialist/ interviewed individuals   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

4	Prevalence of positive individuals for the fasting glycemia test	Application of the FPG test	Positive individuals in FPG/ interviewed individuals	- Absolute number
- %	The relevant Healthcare Center	At the initial moment and afterwards every 3 months

5	Prevalence of positive individuals for the glucose tolerance test	Application of 2-h PG test	Positive individuals in 2-h PG test/ interviewed individuals	- Absolute number
- %	The relevant Healthcare Center	At the initial moment and afterwards every 3 months

6	The number of positive individuals in FPG retested the next day	Re-performing of FPG test	The number of positive individuals in FPG who repeat the test/no. of positive individuals for FPG	-	Absolute number
- %	The relevant Healthcare Center	At the initial moment and afterwards every 3 months

7	Total prevalence of the confirmed D2	Application of protocol values for the diagnosis of D2	The number of individuals with confirmed D2/all interviewed individuals	- Absolute number
- %	The relevant Healthcare Center	At the initial moment and afterwards every 3 months

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The general monitoring scheme is as follows:

In order to monitor the screening process, intended to detect individuals at their early stages of high blood pressure (arterial hypertension) and individuals with installed HTA with a view to managing them most appropriately, it is necessary to report on the following indicators:

No.   Objective   Activity Indicator   F o r m   o f   I n d i c a t o r
Resource of Information   Frequency of reporting
1   Screening of all individuals aged 40-65 of the respective area in relation to HTA   Measuring BP according to the protocol   T h e number of individuals with measured BP/individuals aged 40-65 of the respective area   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

2   Prevalence of HTA stage I   Measuring BP and its interpretation according to the protocol   The number of individuals with HTA st.I/ individuals aged 40-65 of the respective area   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

3   Prevalence of HTA stage II   Measuring TA and its interpretation according to the protocol   The number of individuals with HTA st.I/ individuals aged 40-65 of the respective area   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

4   Prevalence of HTA stage III   Measuring TA and its interpretation according to the protocol   The number of individuals with HTA st.I/ individuals aged 40-65 of the respective area   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

5   Prevalence of isolated systolic HTA   Interviewing   subjects relevant to the diet according to the protocol The number of individuals with isolated systolic HTA/ individuals aged 40-65 of the respective area
- Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

6   Providing advice to all individuals with HTA   Advising   individuals with HTA of different stages according to the protocol   The number of advised individuals with HTA of different stages/ individuals aged 40-65 of the respective area - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

7   Reference of all patients with HTA to the relevant services Orientation of patients according to the protocol   The   number   of individuals with HTA referred to the specialist/individuals with HTA
- Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

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The general monitoring scheme is as follows:

In order to monitor the screening process, intended to assess the overall health condition, to detect acquired and congenital diseases at their sub-clinical stage as well to orient towards diagnosis of different diseases and monitor their progress, it is necessary to report on the following indicators:

No.   Objective   Activity Indicator   F o r m   o f   I n d i c a t o r Resource of Information   Frequency of reporting

1   Total prevalence of individuals with abnormal urine results U r i n e test according to the protocol The number of individuals with critical or abnormal urine values/ individuals aged 40-65 of the respective area
- Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

2   Total prevalence of individuals with abnormal bloodstream formula   Blood test according to the protocol The   number   of individuals with abnormal results of bloodstream formula/individuals aged 40-65 of the respective area   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

3   Total prevalence of ALT, AST, Bilirubin disorders and presence of occult blood in the stool   Analysis of serum for ALT, AST, BLB and occult blood in the stool/individuals aged 40-65 of the respective area The number of individuals with abnormal results of ALT, AST, Bib and with occult blood in the stool/individuals aged 40-65 of the respective area

- Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

4   Total prevalence of lipidogram disorders   The   number   of individuals with abnormal results of lipidogram disorders/ individuals aged 40-65 of the respective area   The number of individuals with abnormal results of lipidogram disorders/individuals aged 40-65 of the respective area   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

5   Reference of all patients with laboratory disorders to the relevant services   Orientation of patients according to the protocol   T h e number of individuals with laboratory disorders referred to the specialist/ individuals with laboratory disorders   - Absolute number
- %   The relevant Healthcare Center   At the initial moment and afterwards every 3 months

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The general monitoring scheme is as follows:

In order to monitor the screening process, intended to support individuals with low risk for CVD so as to maintain this condition, to reduce the risk for CVD about individuals with high risk through strict control of risk factors and in view of the medication therapy for them, it is necessary to report on the following indicators:

Frequency of reporting   At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months
At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months

Resource of information   The relevant Healthcare Center   T h e relevant Healthcare Center   The relevant Healthcare Center   T h e relevant Healthcare Center   The relevant Healthcare Center   T h e relevant Healthcare Center

Form of indicator   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %

Indicator   The number of interviewed individuals posing high risk for CVD/individuals aged 40-65 of the relevant area   The   number   of individuals posing high risk for CVD/individuals aged 40-65 of the relevant area   The number of individuals subject to ECG/ individuals aged 40-65

of the relevant area   The number of individuals with ECG disorders/ individuals aged 40-65 of the relevant area   The number of individuals with ECG disorders/ referred to the specialist/individuals who performed ECG   The number of advised individuals posing high risk for CVD/ individuals who performed ECG

Activity Interviewing individuals on assessment   of total risk for CVD according to the protocol   Interviewing individuals on assessment of total risk for CVD according to the protocol   Application of ECG according to the protocol Application of ECG according to the protocol Orientation of patients according to the protocol   Orientation of patients according to the protocol

Objective   Screening of all individuals aged 40-65 in relation to total risk for CVD   Total prevalence of individuals with high risk for CVD   Screening of all individuals aged 40-65 through ECG

Total prevalence of ECG disorders   Reference of all patients with ECG disorders to the relevant services   Providing advice to all patients with high risk for CVD in the relevant services

No.   1   2   3   4   5   6

"Monitoring means collection
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The general monitoring scheme is as follows:

In order to monitor the screening process, intended to identify individuals who consume tobacco and alcohol excessively, those with insufficient physical activity and those who use inappropriate diet with a view to reducing these behaviors, it is necessary to report on the following indicators:

Frequency of reporting   At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months   At the initial moment and afterwards every 3 months

Resource of information   The relevant Healthcare Center   T h e relevant Healthcare Center   The relevant Healthcare Center   T h e relevant Healthcare Center   The relevant Healthcare Center   T h e relevant Healthcare Center

Form of indicator   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %   Absolute number
 - %

Indicator   The number of interviewed individuals on lifestyle/ individuals aged 40-65 of the relevant area   The number of lifetime and

current smokers /individuals aged 40-65 of the relevant area   T h e number of moderate, dangerous, heavy alcohol users / individuals aged 40-65 of the relevant area   The number of individuals with insufficient physical activity/ individuals aged 40-65 of the relevant area   T h e number of individuals with insufficient diet/ individuals aged 40-65 of the relevant area   The number of advised individuals with unhealthy lifestyle/ individuals aged 40-65 of the relevant area

Activity Interviewing individuals in relation to the lifestyle factors according to the protocol Interviewing individuals in relation to smoking Interviewing individuals in relation to alcohol consumption Interviewing individuals in relation to the physical activity Interviewing   individuals   in relation to the diet according to the protocol Providing advice to smokers, alcohol consumers, to those with insufficient diet and low physical activity according to the protocol

Objective   Screening of all individuals aged 40-65 in relation to the lifestyle according to the protocol   Prevalence of smoking throughout life and the current one   Prevalence of moderate, dangerous and heavy consumption of alcohol Prevalence of insufficient physical activity and sedentarism   Prevalence of using insufficient diet P r o v i d i n g advice 5A and 2R+3P for individuals with unhealthy lifestyle

No.   1   2   3   4   5   6