



Enclosure 1  
NATIONAL DIABETES PREVENTION AND CARE PROGRAMME 2020–2030  
Development strategy  
Programme Implementation Method and Guidelines until 2030



The document is based on the material sent to the Ministry of Health of the Republic of Slovenia (hereinafter: the Ministry of Health) on 30 January 2020 by the Coordination Group of the National Diabetes Prevention and Care Programme 2010–2020 (hereinafter the 2010–2020 NDPCP).

From March 2020, COVID-19 disrupted healthcare both for the chronically ill and for persons with acute conditions (not caused by COVID-19), first as a pandemic and later through persistence in the population, and caused the discontinuation of implementation of health promotion programmes and preventive medical examinations for early detection of chronic diseases, which have been implemented in adapted forms even since their relaunch; in social terms, COVID-19 has worsened the health determinants of some segments of the population. Since persons with diabetes are at particular risk, the 2020–2030 NDPCP is a key development document, and by using diabetes as a model disease, it will support and strengthen information-based action, disseminate knowledge and good practices, enhance the capacity to anticipate and manage unplanned and unpredicted events, strengthen and promote cooperation between various actors, establish socially acceptable measures and values, contribute to the protection of the mental health of the population and healthcare workers, strengthen flexibility in healthcare, and support the provision of measures aimed at health promotion, the prevention and early detection of diabetes, and continuing diabetes care, along with the effective control of COVID-19.

The method of programme implementation and the guidelines until 2030 are based on the work of the Coordination Group which was already completed before the COVID-19 pandemic; therefore the impact of COVID-19 has not yet been included in the programme. However, the relevant activities have been integrated in the Diabetes Prevention and Care Action Plan 2020–2021 (hereinafter the 2020–2021 DPCAP), which was finally approved after the beginning of the pandemic.



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## 1. DIABETES IMPOSES A HUGE BURDEN ON THE INDIVIDUAL AND THEIR FAMILY AND FRIENDS

Diabetes (*diabetes mellitus*) is a group of different diseases that share the common problem of leading to an excessively high concentration of glucose in blood, in lay terms also known as high blood sugar. Blood sugar is kept within normal limits by the hormone insulin, which is produced by the pancreas. If the pancreas can no longer produce enough insulin or the body tissues do not respond adequately to insulin, blood sugar exceeds the normal range. Over time, high blood sugar damages small and large arteries, which is associated with stroke, heart attack, kidney failure, blindness and nerve damage, and, together with the damage to blood vessels in the legs and feet, can also lead to amputation. The consequences of high blood sugar are called chronic complications of diabetes. Diabetes should therefore be detected as early as possible after it occurs and appropriate treatment should be started. There are ways to detect chronic complications at a very early stage, when their progression can be slowed through quality treatment, though they can ultimately not be avoided. When blood sugar rises to an extremely high level (diabetic nonketotic hyperosmolar syndrome, also called hyperosmolar hyperglycaemic state) or drops below the desired level (hypoglycaemia), the resulting problem is called acute complication due to its sudden occurrence.

There are several types of diabetes:

- type 2 diabetes;
- type 1 diabetes;
- gestational diabetes;
- other types of diabetes.

It is estimated that 90–95% of people with diabetes have type 2 diabetes (formerly called age-related or insulin-independent diabetes). High blood sugar is caused by the simultaneous decline in the function of the pancreas, which thus produces insufficient insulin, and the impaired effect of insulin on body tissues, in particular the muscles and liver. Science is also discovering other mechanisms that are thought to further contribute to the rise in blood sugar. As the decline in the pancreas function gradually progresses, the treatment of type 2 diabetes is also intensified, ranging from promoting a healthy lifestyle and therapy with medication taken orally to treatment with insulin and other medicines that need to be injected. Type 2 diabetes can go undetected for many years, because persons with diabetes usually have no problems for years and only seek help when complications occur that are caused by diabetes. Type 2 diabetes can already occur in children and adolescents, though it is mostly diagnosed after the age of 40; however, in the last decade the peak incidence shifted to a younger age and reached the active labour period, in particular among men. Earlier incidence of type 2 diabetes in the population mainly reflects an unhealthy lifestyle and overweight, while the detection of incidence depends on the effectiveness of the systems designed to actively look for type 2 diabetes. The number of persons with diabetes has significantly increased in particular due to higher life expectancy and lower mortality rates in the observation period. In developed countries, the incidence of diabetes has been increasing, in particular due to longer life expectancy of people with diabetes.

For the development of type 2 diabetes, the genetic basis is very important but not yet fully understood. Also important are epigenetic changes. The lifetime risk of developing type 2 diabetes is 40% for individuals who have or had one parent with type 2 diabetes and 70%



if both parents have or had diabetes. Factors that can be influenced are an unhealthy diet and lack of physical exercise associated with overweight or obesity, in particular abdominal obesity. Certain medical conditions may be a precursor to type 2 diabetes, in particular impaired fasting glucose and impaired glucose tolerance (the metabolic syndrome has not proved to be a better marker of increased likelihood of developing type 2 diabetes in comparison to its individual components). Impaired fasting glucose and impaired glucose tolerance are defined with regard to fasting blood sugar or during a test that measures the rise in blood sugar after consuming a certain amount of glucose. Women who have diabetes during pregnancy are also more likely to develop type 2 diabetes.

Type 2 diabetes often occurs together with high blood pressure and impaired lipid metabolism. All three conditions together accelerate the deterioration of small and large arteries, and it is therefore essential to simultaneously treat high blood sugar, blood pressure and lipids to successfully prevent chronic complications.

According to estimations, 4% of people with diabetes have type 1 diabetes (sometimes called juvenile or immune-mediated diabetes or insulin-dependent diabetes). High blood sugar is caused by the decline in the function of the pancreas, which does not produce enough or sometimes any insulin. The cause of pancreatic insufficiency has not yet been fully understood. Pancreatic insufficiency usually happens rapidly, so the person starts to suffer from symptoms soon after the occurrence of the disease, usually within a few days or weeks. Problems escalate rapidly, and for survival immediate insulin therapy is required, which then turns into life-long treatment. The person needs to learn how to take insulin therapy in order to mimic the function of a healthy pancreas. Type 1 diabetes usually occurs in children and adolescents, but it can occur at any age. As type 1 diabetes often affects children or adolescents, it also has an impact on their families. The development of technical devices that facilitate the timely delivery of the right quantity of insulin and provide continuous monitoring of the level of blood sugar eases the complexity of type 1 diabetes treatment. We as yet know neither how to identify people at higher risk of type 1 diabetes nor how to prevent it.

Gestational diabetes is a type of diabetes that first occurs during pregnancy and disappears after childbirth or after the breastfeeding period. Women who have had diabetes during pregnancy are more likely to develop type 2 diabetes later in life and therefore need special care.

Other types of diabetes are caused by certain medicines, surgery, malnutrition, infections, and genetic syndromes and other rare diseases.

On average, a person with diabetes thinks about their disease every 20 minutes, every day, for the rest of their life. Diabetes is therefore a huge burden and severely affects the quality of life. Every day, people with diabetes make decisions and question things that affect the outcome of treatment: what food to choose and how much, how to get as much exercise as possible, whether to stop smoking and how, what their weight is, whether they have taken their pills on time, whether any of the pills could cause problems, whether they know how to use their glucometer correctly, whether they've measured their blood sugar, what does this blood sugar value indicate, what dose and what type of insulin should they use, how should they adjust their insulin dose because they plan to go for a faster walk, how to avoid excessively low blood sugar values, and many other questions. Often, in addition to treating high blood sugar, it is also necessary to treat high blood pressure and



lipids; the list of medicines is long and the ways of taking individual medicines are often completely different. People with diabetes may have a poor knowledge about chronic complications caused by diabetes and/or fear of stroke or heart attack, kidney failure, blindness or amputation. In addition to drug therapy, they therefore need life-long support provided by a healthcare team responsible for diabetes care, which include physicians specialised in different medical fields, nurses and other healthcare professionals (regular life-long education). People with diabetes need support for permanent changes in life in relation to their diet and physical exercise and most of them also need support regarding overweight, where other professionals can also be involved. They need coordinated and integrated care with regard to blood sugar, blood pressure and lipids, active search for early forms of chronic complications of diabetes when they arise, and immediate quality treatment to slow their progression. In the event of chronic complications and intensifying therapies, people with diabetes need full rehabilitation and additional support from the healthcare team. They also need ongoing and coordinated education to acquire appropriate knowledge, understanding and skills and education that fosters their intrinsic motivation and supports them in the planning and implementation of planned changes and in coping with failures. When a person is empowered to approach their diabetes holistically, this means that they take control of their life and are able to take action on issues they themselves recognise as important. Diabetes self-management means that a person with diabetes takes action on the basis of the outcome of self-control; self-control primarily means that people with diabetes measure their blood glucose themselves, which can also include self-monitoring of urine glucose and ketones in blood or urine. In the broadest sense, such care for health is described by the term self-care, which includes not only successful self-management of glycaemia but also the control of other risk factors for cardiovascular diseases, detection of chronic complications and care for the general health condition. The first condition for successful self-management is health literacy, which means that an individual has the knowledge, motivation and ability to access, understand, evaluate and use health information to make an assessment and take a decision on healthcare, disease prevention and health promotion in order to maintain and improve the quality of their life at the given time and in the future.

To persevere in such demanding care, people with diabetes often need not only care provided by diabetes healthcare teams, but also the support of other healthcare professionals, appropriately educated relatives and persons close to them; it is also very important that they participate in professionally supported healthy lifestyle activities organised by associations of people with diabetes and other associations.

Diabetes can accompany an individual from birth to old age, i.e. at home, in kindergarten, at school, at the workplace, in the domestic environment and in the third age. People with diabetes are involved in different environments at different stages of life. Children with diabetes attend kindergarten and school, and at that time their families are importantly involved in care. Children in this period may also be affected by diabetes if one of their parents or others who are close to them suffer from this disease. The increasing prevalence of type 2 diabetes among the working population also calls for workplace adaptations for persons suffering from diabetes, measures to prevent diabetes and other chronic diseases, and workplace adaptations to promote the health of healthy people. There are also an increasing number of women of reproductive age who suffer from diabetes or develop diabetes during pregnancy. At that time diabetes has an impact on the woman, her family and also on her child. The quality of an individual's life in their domestic environment, in the family, within the wider social network and in the local community has



a key impact on their lives, which is an additional challenge of diabetes prevention and care in the context of maximising quality of life. The third age is often accompanied by the individual's re-evaluation of values and choices, but at the same time it also represents an increased risk of developing several chronic conditions and diseases. Diabetes, whether already a long-time companion or a newly developed chronic disease, is therefore often just one condition, and the quality of life is increasingly dependent on the functional capacity of the individual and their social network.



## 2. TYPE 2 DIABETES CAN BE PREVENTED OR DELAYED TO A LATER STAGE OF LIFE

The genetic makeup and other genetic factors influence the probability of whether an individual will develop type 2 diabetes. Despite the innate predisposition to develop type 2 diabetes, however, the individual can influence the time of its occurrence. By living a healthy lifestyle, type 2 diabetes can be delayed to a later stage of life or even prevented. A healthy diet, sufficient physical exercise and weight management are ways to reduce the probability of the occurrence of type 2 diabetes. However, society should also take responsibility for a healthy lifestyle by providing living conditions which ensure healthy eating and sufficient physical exercise.

Obesity is a major independent risk factor for both type 2 diabetes and atherosclerotic cardiovascular diseases. In Europe 7.7% of deaths are attributable to excess weight. The risk of type 2 diabetes is seven times higher in obese people compared to people with a healthy body weight and three times higher in overweight people (a BMI of 25–29.9 kg/m<sup>2</sup>).

Optimum population health can be expected at a median body mass index of 21–23 kg/m<sup>2</sup>, while the individual's goal is to maintain a BMI of between 18.5 and 24.9 kg/m<sup>2</sup>. The risk of health complications increases already at values above 25 kg/m<sup>2</sup>, increases further at 30 kg/m<sup>2</sup> and is very high at values above 40 kg/m<sup>2</sup>. Weight gain is highest in younger persons and middle-aged persons.

A healthy lifestyle requires the right conditions in society and the health sector is not the only and often not even the key partner in their provision.

The proportion of overweight and obese children and adolescents has doubled in the past 30 years, with a more significant increase among boys, with the proportion of overweight boys increasing from 13.5% to 18.8% and the proportion of obese boys increasing from 2.8% to 6.1%. The bodyweight of adults has also exceeded the recommended values for 42% of women and 66.6% of men.

Maintaining and improving health depends on the relationship between the energy entering our body through food and the energy consumed through physical activity. Although the level of overall physical activity among adult Slovenians is increasing on average, the proportion of those who meet the recommendations for recreational and physical activity is very low, at around 20%.

However, data collected since 2011 indicate a moderating in the increase in overweight and obesity in young people, which reflects an apparently well-functioning systemic implementation of measures in various areas, in particular as regards nutrition and the promotion of physical activity.

With the Resolution on the National Programme on Nutrition and Physical Activity for Health 2015–2025 (hereinafter: the ReNPPTDZ 2015–2025), Slovenia aims at improving the nutritional habits (increasing the consumption of fruit and vegetables, fish, wholegrain cereals and cereal products and reducing the intake of trans-fats, saturated fats, sugar and salt) and physical activity habits of the population from the early years until old age. It has





been prepared with the aim of stopping and reducing the weight gain of the population of Slovenia and reducing the incidence of chronic non-communicable diseases (NCDs).

The ReNPPTDZ 2015–2025 builds on the results of former policies in this area which contributed to some positive developments in healthy eating and physical activity. However, due to major lifestyle changes (consumption of foods high in sugar, fat and salt, the aggressive marketing of such foods, and increasing physical inactivity), obesity in children, adolescents and adults is on the rise, while fragility and functional disability among the elderly and chronically ill need to be coped with. The new document proposal therefore combines measures in the field of healthy eating and measures promoting daily physical activity, as this is the only way to manage obesity and other chronic non-communicable diseases satisfactorily.

The specific added value of the ReNPPTDZ 2015–2025 lies in the integration and interaction of strategies from other areas that comply with the ReNPPTDZ 2015–2025 and support its objectives, such as agricultural policy guidelines aimed at increasing local sustainable care and self-care; guidelines of the National Sports Programme and education legislation; guidelines of the Slovenian tourism strategy which support sustainable development and measures to make Slovenia an active, healthy and green country; guidelines for sustainable mobility and good spatial planning; and social policy guidelines for social activation and poverty risk reduction. The implementation of such measures will also contribute to Slovenia's economic and social development.

To ensure the coordinated action of all key stakeholders, an intersectoral working group will be set up to coordinate the implementation and monitoring of the programme and to simultaneously provide for timely, open and efficient exchange of data and information. The implementation of measures will be set out in periodic implementation plans, which will define all activities, their providers and the required financial resources in detail.

Health is not taken care of in the health sector, but in the environment where people spend most of their time, i.e. in kindergartens and schools, at the workplace, and in the local community. Public debate therefore requires the involvement of all stakeholders – the Government, NGOs, the private sector, experts, civil society and local government. Therefore everyone is invited to contribute with their proposals and comments to improve a document which is important for all and which will constitute the basis for improving the eating habits and physical activity habits of the population in Slovenia over the next decade.

The ReNPPTDZ 2015–2025 defines the following key (priority) areas to prevent type 2 diabetes:

- ensuring healthy nutrition in line with the guidelines and recommendations for different age groups (in particular within the organised meal programmes in kindergartens and school, for students, and in hospitals and homes for the elderly);
- promoting a wide range of healthy choices in catering and tourism in connection with the tourist offer in local environments with the aim of making Slovenia known as a great, green, active and healthy country);
- promoting a wide range of healthy food products, in cooperation with the industry (reduced content of sugar, salt and fats in foods);



- ensuring accessibility of healthy food to socially and economically disadvantaged groups (for example own food production, urban gardens, and improved health and financial literacy);
- providing safe and health-enhancing food with an emphasis on sustainable local food supply and food self-sufficiency;
- raising the awareness of consumers through adequate labelling, presentation and marketing of food and limiting the marketing of food for children;
- promoting physical activity for people of all ages;
- strengthening the role of the healthcare sector in obesity management and physical activity with the purpose of reducing chronic diseases;
- education and research in this area;
- information and awareness-raising, including public health campaigns.

In ensuring conditions for a healthy lifestyle, the healthcare sector plays, in particular, the role of a health advocate and provides for coordinated action of other ministries. The role of the healthcare system also includes developing various programmes, models and tools implemented or used in other professional fields to change lifestyle habits. In the period up until 2025, the NDPCP will be harmonised with the objectives, measures and activities of the ReNPPTDZ 2015–2025 which are also implemented at the inter-ministerial level, including restricting advertising of unhealthy food in various media, in particular in those targeting young people, through the promotion of healthy eating guidelines from food providers, while in cross-border advertising and website advertising international rules will be observed. An important partner in raising awareness and providing conditions for a healthy lifestyle are NGOs.

Guidelines until 2030:

- participate in the design, implementation, dissemination and evaluation of measures of the ReNPPTDZ 2015–2025 and in the development of a strategic document to support healthy lifestyle after that period;
- ensure that NGOs are equal partners in the protection and promotion of health and that they operate independently of industry.

Health is increasingly linked to the development of society and is turning into an economic category. Chronic diseases, among them diabetes, are among the main challenges for the development of society.

Just as health is connected with economic and social circumstances, we know today that the rate and level of development that a society can reach also depend on its health.

Guidelines until 2030:

- act as an advocate for investing in health, promoting health as a development category in all regions in Slovenia and different parts of society.

Policies and measures being adopted and implemented at other ministries can have a significant impact on health.

Measures to be adopted in individual areas, such as agriculture, the economy, education, tourism and transport, may have an impact on economic, social, structural and environmental health factors. They define the conditions in which individuals and



population groups can lead a healthy lifestyle, influence their eating habits and physical activity, and prevent the development of chronic diseases.

Guidelines until 2030:

- establish appropriate forms of monitoring the impacts on health at the national level and at the level of local communities, for example via the website "Zdravje v občini" (Health in the Municipality) and enhance the consideration of health in all policies;
- ensure cross-sectoral cooperation at the national, regional and local levels and increase the sensitivity of other professional areas to health.

A community approach to health contributes to the health of all in the community.

Because of the different circumstances in which people live in local communities, it is important that health institutions also operate "in the field", i.e. in the environments where people live and work. This means that professionals in healthcare centres, which are the basic organisational units carrying out health promotion activities, identify the health characteristics of a certain community and then act on the basis of clinical guidelines. Equally important is the provision of a community-based approach as an activity where the community participates in providing for the health of the population. This means that the community identifies, provides and coordinates activities to maintain and promote health and reduce health inequalities. In this way, it preserves the creativity of the individual and their freedom to choose activities for promoting health and makes use of all scientific, technological and institutional development results. The work of the healthcare sector (and other actors) in the community is supported by collaborative joint healthcare where individual entities take on different roles: they can be variously initiators, providers, coordinators, informers and recipients of services. The key coordinating role is taken over by the municipality as a permanent legal framework of the local community. It is important that the recipients of services are involved in the design of approaches, measures and activities.

Healthcare professionals employed at the primary healthcare level and in the area of public health cooperate with other actors in the community as initiators of activities for health and co-create and support the initiatives of other actors. Such an approach to health in the community is carried out by health promotion centres which are organisational units of healthcare centres.

Guidelines until 2030:

- support the work of health promotion centres in activities related to a community-centred approach to health and further approach development;
- strengthen public health activities at the local level.

By living a healthy lifestyle, type 2 diabetes can be delayed to a later stage of life or even prevented.

By making healthy choices, the development of type 2 diabetes can be delayed to a later period in life or even prevented. Risk factors for diabetes that can be influenced by public health measures are in particular bad eating habits, lack of exercise and obesity. These are the risk factors that, together with smoking and risky drinking, are among the lifestyle factors common to all chronic diseases. Although they require different approaches, we can influence them in the same living environments (school, workplace, family and local



community). Actions include promoting healthy lifestyles for all population groups and providing conditions in which a healthy lifestyle can be practised at all stages of life. Particular attention should be paid to children and adolescents, future parents, and groups of persons with risk factors for diabetes and other chronic diseases, in particular people in the working age. Along with measures to promote healthy choices, persons with impaired fasting glucose or impaired glucose tolerance need integrated healthcare. Health promotion centres and health education centres provide a range of programmes and other activities aimed at promoting healthy lifestyle for individuals with risk factors and certain medical conditions. The planning, implementation and monitoring of prevention programmes are governed by the Rules on carrying out preventive healthcare at the primary level.

It is important to promote greater involvement of the population in screening programmes implemented by family medicine clinics and in programmes of health promotion centres.

Guidelines until 2030:

- ensure regular monitoring and reporting on the eating and physical activity habits of Slovenians of different age groups, in particular children and adolescents and groups with adverse health factors (less educated people with low income, ethnic groups, and the economically and socially disadvantaged);
- ensure the promotion of healthy lifestyle at all stages of life and in all environments (school, workplace, family and local community) and regular raising awareness of the population about the impact of unhealthy lifestyles on the health and the development of chronic diseases, in particular type 2 diabetes;
- raise awareness and encourage individuals to adopt a healthy lifestyle and take responsibility for their own health by strengthening health literacy and supporting the empowerment process, in particular by encouraging participation in programmes and activities of health promotion centres or health education centres;
- make people aware of the importance of a balanced diet, physical exercise and a healthy lifestyle, in particular vulnerable groups, such as children and adolescents, groups at higher risk, and pregnant women or future parents, who are key in terms of prevention from developing diabetes early in life;
- integrate other actions and activities to promote health at the workplace and activities of the working age population;
- prepare strategies and programmes for less developed areas and support their implementation;
- ensure further development of the public health profession and strengthen the training of other healthcare professionals and professionals in all areas relevant to health through public health content.

Slovenia has many health promotion programmes and projects in place, but often they have not been systematically evaluated and have not developed from a pilot project into an activity accessible to all. This aspect is now being regulated by the measures of the ReNPPTDZ 2015–2025.

The ReNPPTDZ 2015–2025 supports, inter alia, the extension of the highest quality programmes and projects at the national level in order to achieve coverage and continuity of care for specific population groups. Health promotion programmes implemented in the framework of healthcare at the primary healthcare level are being connected and



coordinated, and with the introduction of health promotion centres they are becoming equally accessible throughout Slovenia. A system of evaluating the effectiveness of programmes and activities is also being put in place, in particular from the aspect of how these programmes have been taken advantage of by those most in need. However, interconnection with the activities of pharmacy pharmacists in the field of health promotion is still weak and not systematically regulated.

Guidelines until 2030:

- establish and implement internal and external evaluation programmes and projects carried out in different environments and financed from public funds;
- support and disseminate provenly effective programmes and good practice projects in all environments;
- support the coordination and integration of health promotion programmes and activities within the health sector and establish connections with the activities of pharmacy pharmacists in this field.

The healthcare sector provides preventive medical examinations aimed at identifying risk factors for the most common and already present chronic diseases, including type 2 diabetes.

Family medicine clinics carry out preventive medical examinations, which are available to every citizen in Slovenia after the age of 30 at least every five years. In the implementation of preventive medical examinations, registered nurses play a special role.

*Explanatory note: tasks of registered nurses in the family medicine team in relation to the identification of persons with risk factors.*

*By carrying out preventive medical examinations, registered nurses identify persons with risk factors for type 2 diabetes in the population and coordinate and partly implement structured care. Within the framework of their tasks they:*

- *identify and increase the level of motivation of persons for changing their lifestyle;*
- *provide brief counselling;*
- *refer the person to health counselling/health promotion programmes (health education/health promotion centres) and encourage them to participate in these programmes;*
- *refer the person in due time to have their fasting glucose concentration regularly measured and to do an oral glucose tolerance test (the method is chosen by the physician or agreed within the team).*

*Source: family medicine team protocol.*

Guidelines until 2030:

- provide the capacity to carry out regular preventive medical examinations;
- adapt approaches for the implementation of preventive medical examinations for persons who do not attend preventive medical examinations in a family medicine team, taking into consideration the ethical principle of patient autonomy;
- adapt approaches to identify risk factors outside the healthcare system, possibly in conjunction with a community health approach;
- coordinate and integrate the activities of pharmacists in pharmacies in this field with other activities in the healthcare system.





### 3. PERSONS WITH IMPAIRED FASTING GLUCOSE OR IMPAIRED GLUCOSE TOLERANCE NEED SPECIAL TREATMENT

Impaired fasting glucose and impaired glucose tolerance, which make people more likely to develop type 2 diabetes, can be identified by a physician in a medical check-up which includes some laboratory tests to determine the blood sugar level. In addition, the risk of type 2 diabetes can also be determined using a questionnaire that does not require laboratory tests and is therefore suitable for use at population level or in awareness-raising and information activities for the general public. The questionnaire identifies individuals who need further laboratory diagnostics. In 2019 an expert debate was initiated to determine how high the risk of type 2 diabetes is in women who had diabetes during pregnancy; on the basis of the results, it will be possible to develop measures proportionate to the risk.

In addition to the risk of development of type 2 diabetes, persons with impaired fasting glucose or impaired glucose tolerance are also at increased risk of developing atherosclerotic cardiovascular diseases.

Persons with impaired fasting glucose or impaired glucose tolerance are systematically diagnosed with diabetes by means of preventive medical examinations which can also confirm suspicion of diabetes.

The healthcare system provides for preventive medical examinations to identify impaired fasting glucose or impaired glucose tolerance.

Family medicine clinics carry out preventive medical examinations, to which everyone in Slovenia after the age of 30 is entitled at least every five years. Registered nurses play a special role in the implementation of preventive medical examinations, also in connection with impaired fasting glucose or impaired glucose tolerance.

*Explanation: The tasks of registered nurses in the family medicine team in relation to the identification and care of persons with impaired fasting glucose or impaired glucose tolerance*

*By way of preventive medical examinations, a registered nurse identifies persons with impaired fasting glucose or impaired glucose tolerance in the population and coordinates and partly implements their structural care by:*

- *identifying and increasing the level of motivation of persons for changing their lifestyle;*
- *providing brief counselling;*
- *referring the persons to health counselling/health promotion programmes (health education/health promotion centres), in particular to the programme "High blood sugar for persons with impaired fasting glucose or impaired glucose tolerance" and encouraging them to participate in these programmes;*
- *referring the persons in due time to have their fasting glucose concentration regularly measured and to do an oral glucose tolerance test (the method is chosen by the physician or agreed within the team).*

*Source: family medicine team protocol.*



#### Guidelines until 2030:

- provide the capacity to carry out regular preventive medical examinations;
- adapt approaches for the implementation of preventive medical examinations for persons who do not attend preventive medical examinations;
- adapt approaches for probability assessment outside the healthcare system (using a questionnaire) with regard to whether a person has impaired fasting glucose or impaired glucose tolerance, possibly in conjunction with a community approach to health.

In the healthcare system, the possibility to identify people with impaired fasting glucose or impaired glucose tolerance should be upgraded by integrating systematic approaches into family medicine activities.

The healthcare system should be upgraded with organised activities for early detection of persons with impaired fasting glucose and impaired glucose tolerance, for example in occupational, transport and sports medicine and by pharmacists in pharmacies. Detection of such conditions in children and adolescents and actions, often involving entire families, is of particular importance and is described in Section 2.

#### Guidelines until 2030:

- establish organised activities for early detection of persons with impaired fasting glucose or impaired glucose tolerance in occupational, transport and sports medicine;
- set up organised activities for probability assessment (by using a questionnaire) of whether a person has impaired fasting glucose or impaired glucose tolerance, this in compliance with clinical guidelines;
- establish clinical pathways and a cooperation protocol for further diagnostics and care for persons with impaired fasting glucose or impaired glucose tolerance.

Measures to reduce the likelihood of developing type 2 diabetes in people with impaired fasting glucose or impaired glucose tolerance are integrated in the activities of the healthcare system.

Action needs to be organised in such a way that effectiveness can be evaluated. Health education centres and health promotion centres implement programmes to support healthy eating, physical activity and weight control; these programmes are also suitable for persons with impaired fasting glucose or impaired glucose tolerance, provided, of course that they have bad lifestyle habits and realise that they should break them to improve their health. These centres also provide for a special programme intended to in-depth understanding of what impaired fasting glucose and impaired glucose tolerance mean for the individual and to the promotion of health literacy.

#### Guidelines until 2030:

- provide and strengthen the capacity of programmes to increase health literacy, empowerment and support to self-management for persons with impaired fasting glucose or impaired glucose tolerance;
- adapt approaches to increase health literacy, empowerment and support for self-management for persons with impaired fasting glucose or impaired glucose tolerance in persons who do not attend preventive medical examinations;





- adapt approaches to strengthen health literacy, empowerment and support for self-management for persons with impaired fasting glucose or impaired glucose tolerance outside of the healthcare system, possibly in connection with a community approach to health.

Persons with impaired fasting glucose or impaired glucose tolerance should be regularly examined for the development of type 2 diabetes and promptly included in quality diabetes treatment.

Persons with impaired fasting glucose or impaired glucose tolerance are more likely to develop type 2 diabetes and therefore belong to the population group in which it is particularly reasonable to systematically search for people with still undiagnosed but suspected type 2 diabetes. The registered nurse in the family medicine team therefore refers a person with impaired fasting glucose or impaired glucose tolerance in due time to take a repeated fasting glucose tolerance test and an oral glucose tolerance test. On the basis of preventive medical examinations, the registered nurse also provides an early diagnosis of type 2 diabetes in other people. These activities are also carried out outside of family medicine services; they are, however, not coordinated and interconnected.

*Explanation: Tasks of registered nurses in the family medicine team in relation to early diagnosis of type 2 diabetes in persons with impaired fasting glucose or impaired glucose tolerance*

*By carrying out preventive medical examinations, the registered nurse identifies persons with suspected but still undiagnosed diabetes among the identified population, records the results in the documentation and informs thereof the physician, who then carries out diagnostic procedures and makes a diagnosis.*

*Source: family medicine team protocol.*

Guidelines until 2030:

- provide facilities for early diagnosis of type 2 diabetes, in particular among persons with impaired fasting glucose or impaired glucose tolerance;
- adapt approaches for early diagnostics of type 2 diabetes, especially among persons with impaired fasting glucose or impaired glucose tolerance;
- adapt approaches to assess the probability that a person may also have undiagnosed type 2 diabetes; these approaches should be provided beyond the healthcare system, possibly in conjunction with a community health approach;
- set up an organised activity to detect suspected but not yet diagnosed type 2 diabetes in occupational and sports medicine and by pharmacists in pharmacies in accordance with clinical guidelines;
- establish clinical pathways and cooperation protocols for the follow-up of suspected but not yet diagnosed type 2 diabetes in occupational and sports medicine and through the activities provided by pharmacists in pharmacies;
- quality data collection and reporting to the health statistics system.

Persons with newly diagnosed type 2 diabetes are immediately integrated in a high-quality effective and safe care programme following clear clinical pathways.



Effective treatment of high blood sugar immediately after detection is related to a lower risk of occurrence of chronic complications caused by diabetes. This is because the body has a so-called glycaemic memory: too high a blood sugar level damages tissues and this damage cannot be reversed. It is therefore important that the set objectives of treating high blood sugar in persons with newly diagnosed type 2 diabetes are achieved as quickly as possible, this through good cooperation among all healthcare professionals from the healthcare team, regardless of the healthcare system level at which the person receives care. In the family medicine team, the registered nurse has the role of care coordinator.

*Explanation: Tasks of registered nurses in the family medicine team in the care of persons with type 2 diabetes*

*Registered nurses coordinate the care of persons with type 2 diabetes and are administrators of the annual diabetes care report, which also includes a care plan. The care plan is prepared jointly by the physician, the person with diabetes and the registered nurse. The treatment objectives and diagnostic methods are laid down by the physician. Care coordination means the provision of timely laboratory control (at least HbA1c, lipid profile, hepatogram, kidney function and other according to the care plan), screening tests for diabetic foot and examination at the diabetic retinopathy centre if no other method is determined by the physician; the care plan, however, may also include other elements. Diagnoses are made by physicians.*

*Registered nurses provide brief education to persons with type 2 diabetes who are being treated with non-pharmacological intervention and medication for oral use and refer these persons to additional education determined by the physician or as deemed necessary by the people with diabetes themselves, especially after the inclusion in the short programme "Type 2 Diabetes" and in the longer programme "With Diabetes Through Life", if a health promotion centre is available in the nearby area.*

*Registered nurses carry out diabetic foot screening tests and briefly advise on appropriate foot care and, if necessary, refer the person to the physician for further treatment.*

*Registered nurses conduct and independently complete the planned visits of people with type 2 diabetes (in accordance with the protocol for type 2 diabetes) who are efficiently achieving the treatment objectives (the objectives are laid down by the physician).*

*Source: family medicine team protocol.*

Guidelines until 2030:

- ensure capacities for timely, high-quality and safe care for persons with type 2 diabetes at the primary level and at other levels of healthcare;
- develop innovative organisational forms for the provision of timely, high-quality and safe care of persons with type 2 diabetes at the primary level and at other levels of healthcare;
- provide up-to-date clinical guidelines, establish clinical pathways and cooperation protocols, provide for the production of annual diabetes care reports which include care plans, and reinforce the importance of care coordination and case coordinators;



- ensure quality monitoring and data capture and the production of annual reports for the mezzo and macro levels.



#### 4. TYPE 2 DIABETES IS A VERY COMMON DISEASE AND REQUIRES TREATMENT RELATED TO BLOOD SUGAR, BLOOD PRESSURE AND BLOOD LIPIDS

Approximately 95% of all people with diabetes have type 2 diabetes. Persons with type 2 diabetes are usually overweight and have high blood pressure and dyslipidaemia. Over the long term, diabetes can lead to chronic complications, affect the severity of other diseases and contribute to higher mortality. People with diabetes often suffer kidney, eye and nerve damage and foot complications. Two-thirds of deaths are caused by cardiovascular diseases. Therefore type 2 diabetes cannot be considered a "mild" disease. The earlier it is detected, the more likely it is that it has not yet caused irreversible damage to body tissues and that, by taking immediate action, its chronic complications can be prevented. By achieving blood sugar targets and treating high blood pressure and blood lipids, the development of chronic complications can be prevented or delayed.

For some people, a healthy lifestyle is sufficient for the treatment of high blood sugar, but the decline in pancreatic function sooner or later requires drug therapy, including insulin. In addition to high blood sugar, high blood pressure and lipids need to be treated at the same time, because they also contribute to the development of the chronic complications of diabetes. Persons with type 2 diabetes are more likely to have mental disorders, dental and gum disease, sleeping disorders with sleep apnea, and impaired pancreatic enzyme secretion. This indicates that persons with type 2 diabetes often have at least two chronic diseases or conditions, which increases the complexity of care.

Diabetes is a lifelong disease; treatment is complex and requires the full participation of the person with diabetes and often also the cooperation of their families and friends. Diabetes education is the basic measure through which a person with diabetes acquires useful knowledge, understanding and skills, strengthens health literacy, and becomes empowered for a high-quality life and independent diabetes control, which leads to the person's empowerment for self-care. When planning and implementing care, the person with diabetes actively cooperates with other members of the healthcare team. Diabetes is a very complex disease, both professionally and, due to its prevalence, also organisationally, and it is therefore essential to coordinate and interconnect the different levels and structures of the healthcare system and to work with partners outside the healthcare system, in particular with associations of people with diabetes and other non-governmental organisations which promote healthy lifestyle through their activity.

From the time the diagnosis is set, a person with type 2 diabetes needs intensive treatment of high blood sugar, blood pressure and lipids in order to achieve the goals quickly and safely.

Target values for blood sugar, pressure and lipids are set in the clinical guidelines. It is extremely important to treat all three conditions at the same time, as the beneficial effects are cumulative. The purpose is to achieve the treatment objectives as soon as possible. The cornerstone of treatment encouraged throughout life is a healthy lifestyle. There are also many different medicines available for the treatment of all three conditions. It is particularly important to set individual goals for the treatment of hyperglycaemia for each individual person with diabetes through timely intensification of treatment or reduced



intensification of treatment of frail elderly people. It is difficult to provide such a substantively varied and comprehensive range of care because of the prevalence of the disease, as it exceeds the tasks assigned to the healthcare system.

Guidelines until 2030:

- joint and integrated functioning of the healthcare system to provide fast, effective, accessible, high-quality and safe management of high blood sugar, blood pressure and blood lipids;
- provide up-to-date clinical guidelines, establish and upgrade clinical pathways and cooperation protocols, ensure the production of annual diabetes care reports which include care plans, and strengthen the importance of care coordination and case coordinators;
- include partners outside the healthcare system as appropriate, in particular associations of people with diabetes.

Education of people with diabetes strengthens health literacy and supports the process of empowerment for successful independent control of the disease.

The education of people with diabetes on diabetes control is a lifelong process. It should be made available at the time diabetes is diagnosed, after each change of treatment, at regular time intervals, at the request of the person with diabetes or upon the initiative of the healthcare team. Education must be structured and the person should receive relevant and clear messages to be able to take independent and optimum care of themselves.

*Explanation: Particularly important contents of education for people with diabetes:*

- acceptance of a disease that is progressive and lifelong;
- a healthy lifestyle, which has a positive impact on numerous risk factors in the context of the disease, is the cornerstone of the treatment of disease and therefore has an important role in education;
- education gives essential support in reducing weight for overweight or obese people or in maintaining normal weight for those with a healthy weight;
- persons treated with certain types of medication need additional education on diet and physical exercise;
- education builds self-confidence for independent control of blood sugar level on the basis of self-control, i.e. home-measured blood sugar level;
- the start of insulin treatment is a specific period in the life of a person with diabetes, in which the person faces psychological barriers and must acquire a lot of knowledge and skills and learn to self-administer insulin effectively and safely;
- education is required for quality management of blood pressure, which includes blood pressure measurement at home;
- education on healthy lifestyle is of particular importance for the management of dyslipidaemia;
- when complications arise, such as visual impairment, amputation, or heart or vascular disease;
- when starting haemodialysis treatment or undergoing kidney transplant, adjustments to blood sugar treatment are often required, and the person with diabetes also needs psychological support at that time.

Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni>.



The person with diabetes is provided with the necessary education within the healthcare team, which must function as a single unit; in delivering education, all members of the team work in a unified manner. The treatment objectives must be known and uniform; they must be communicated to all members of the team and are therefore stated in the annual diabetes care report, which also includes a treatment plan. Long-term objectives should be defined on the basis of several short-term objectives. The objectives should be tailored to each individual and their problems; the person must identify them as important and they must be clear, feasible, measurable, accessible and achievable, with an acceptable incidence of adverse effects and with self-participation acceptable to the person.

Education in family medicine is carried out systematically by registered nurses and physicians in the family medicine team, by healthcare professionals in health promotion centres, and, to a lesser extent, in health education centres, while non-systematically also by community nurses. At the secondary and tertiary levels, education is carried out by registered nurses with specific knowledge on the education of people with diabetes and by a diabetologist.

Guidelines until 2030:

- strengthen the capacity of healthcare teams to develop plans with short-term and long-term objectives related to diabetes care, this together with the person with diabetes as an equal team member;
- provide modern clinical guidelines, unified education contents and an education programme and establish clinical pathways and cooperation protocols for education;
- establish appropriate time and staffing norms for healthcare adapted to the large differences among people with diabetes;
- provide capacities for strengthening health literacy and support to the process of empowerment for successful self-management of diabetes;
- adapt approaches for strengthening health literacy and support the process of empowerment for successful self-management of diabetes outside of the healthcare system, possibly through a joint approach;
- establish organised activity and cooperation protocols for strengthening health literacy and supporting the process of empowerment for successful self-management of diabetes within pharmacist activities in compliance with clinical guidelines;
- develop innovative organisational forms to strengthen health literacy and support the process of empowerment for successful self-management of diabetes, including through information technology.

All healthcare professionals working in a team must have the appropriate knowledge and skills for carrying out education.

A healthcare team includes a physician, a registered nurse and other professionals, regardless of the level of healthcare. A person with diabetes and, where appropriate, their family and friends are equal members of the team.

Guidelines until 2030:

- strengthen and support structured education of people with diabetes;



- unify education so that it is appropriately accessible to people with diabetes, regardless of the level of healthcare at which care is delivered;
- promote networking among team members;
- actively involve people with diabetes and, where appropriate, their family and friends in the development and implementation of the diabetes care plan;
- provide for ongoing professional upgrading of the skills of healthcare professionals for team work and skills to strengthen health literacy and to support the process of empowerment for successful diabetes self-management.

The success of achieving targets in treating high blood sugar is determined by standardised methods that must be accessible.

There are several criteria for monitoring whether the treatment objectives for high blood sugar are being met. Measuring the concentration of blood sugar (glucose) only determines the current state. Therefore, glycated haemoglobin (HbA1c), reflecting the glycaemic status of over approximately the last two months, is used for measuring medium-term blood sugar control. As a rule, it is the most important criterion on the basis of which further therapeutic measures are planned. Measurements should therefore be made using standardised methods. Another very important criterion related to blood sugar is self-measurement of blood sugar, which the person with diabetes carries out at home. This requires medical devices which should be adapted to the needs of people with diabetes and their clinical condition (for example interstitial glucose measurement systems for some people) being available and of a suitably high quality in order to be used by the person with diabetes. On the basis of the measured blood sugar value, the person with diabetes can, in each new situation, make the right decision relevant for successful treatment of their diabetes. In addition to the accessibility of medical devices, the accessibility of relevant education and motivation of people with diabetes are equally important for treatment. Self-control of blood sugar should thus be widely available, while professionals and people with diabetes should use them responsibly.

Guidelines until 2030:

- provide and strengthen the availability of glycated haemoglobin (HbA1c) and blood sugar (glucose) concentration testing by using standardised methods;
- ensure optimum availability of medical devices, including state-of-the-art devices, if so required by the clinical condition, and access to relevant education for self-control and self-management of blood sugar, while providing conditions under which people with diabetes are independent in managing their disease.

The availability of new medicines and technologies for the treatment of type 2 diabetes that have proven to be effective and safe are being promoted.

New medicines and technologies must be developed and made accessible in an appropriate manner.

Guidelines until 2030:

- provide optimum availability of new medicines and technologies that have proven to be effective and safe.



Effective, safe care which is available to every person with diabetes requires clinical guidelines and clearly defined and established clinical pathways and cooperation protocols.

The first clinical guidelines for type 2 diabetes care were developed in 2007. They were subsequently updated in 2011 and 2016 and today serve as the professional basis for care. Tools intended for more complex conditions include mindlines that guide physicians to select optimum treatment for each individual person with diabetes with regard to the person's associated diseases, wishes and quality of life. This knowledge was introduced into daily practice simultaneously with the relevant organisational adjustments, in particular by upgrading family medicine teams, increasing financial resources for laboratory services, the involvement of registered nurses and, in particular, through modified forms of work, i.e. by taking over care coordination, the production of annual diabetes care reports and joint planning of further care. The development of clinical pathways and cooperation protocols that form a coherent chain of care with clearly defined roles of individual professionals and organisations involved in it, with an emphasis on uniform and coordinated action, has not yet become a widely established way of providing coordinated and integrated care. It is also important to establish free, widely accessible communication and consultation channels, including with the use of information technology. In more complex cases which require networking with social services, a case coordinator should be involved.

Guidelines until 2030:

- update clinical guidelines,
- support the implementation of clinical guidelines,
- establish clinical pathways and cooperation protocols which involve communication and consultation channels.

The organisation of care for people with type 2 diabetes should provide for equal, high-quality and safe care, regardless of the healthcare system level at which it is carried out.

There are many people with type 2 diabetes. Family doctors (as family medicine specialists are usually called) take the leading role in the care for these persons, while registered nurses and other nurses participate as part of the team. However, care of persons with type 2 diabetes is complex, and, apart from the measures of a qualified family doctor, it also requires the education of the person with diabetes and knowledge and skills on the part of numerous other healthcare professionals. In order to provide coordinated care, all family doctors and nurses at the primary level are integrated in healthcare teams at the primary level of the healthcare sector. This includes setting up functional teams where the members come together to complement their knowledge and skills. Teaming up for the care of persons with type 2 diabetes must not lead to the fragmentation of primary healthcare. The family doctor, even when providing care of persons with type 2 diabetes, must maintain a holistic view of the person, which also includes the consideration of other diseases. At the primary level, pharmacists in pharmacies are also actively involved.

Care for people with type 2 diabetes which is led by family doctors is shared between the healthcare team at the primary and secondary levels of healthcare by agreement. Coordination and integration of care at both levels are extremely important. The first





condition is to share the work by way of clinical pathways in place for the establishment of tasks, competences and responsibilities.

*Explanation: Referral to further care for type 2 diabetes in the diabetes team at the secondary and tertiary levels*

*As agreed, referral to care in the diabetes team is not necessary until all therapeutic options available to the family medicine team have been exhausted. Specifically, this means that in the case of type 2 diabetes treated with non-pharmacological interventions and medication for oral use, examinations at the diabetologist are not necessary if the individually set target values have been reached or the therapeutic options available to the family doctor have not yet been fully exhausted. At the discretion of the family doctor, people with diabetes are referred to the diabetologist for the introduction of treatment with insulin or other new medicines, this in accordance with the restrictions introduced by the Health Insurance Institute of Slovenia.*

*Source: work protocol in the family medicine team.*

Key foundations for the improvement of care for persons with type 2 diabetes are good organisation of care and systematic quality monitoring. The basic principles of introducing new organisational forms are changes agreed by key partners who share the common goal, which is to improve the quality of care. Changes are planned on the basis of the analysis of the existing situation, and usually several small changes are introduced, the effect of which needs to be monitored. Changes are introduced gradually.

Guidelines until 2030:

- define the tasks, competences and responsibilities of individual professional groups in the team and between the primary, secondary and tertiary levels as soon as possible. The tasks, competences and responsibilities not only refer to medicines but also cover other aspects of diabetes treatment;
- strengthen the capacity of the existing forms and develop new, also innovative, organisational forms for the care of persons with type 2 diabetes;
- introduce organisational forms in model environments and integrate them in the healthcare system with appropriate local adaptations.

Pharmacists in pharmacies are the most widely accessible healthcare professionals and can significantly contribute to better care of persons with type 2 diabetes.

The pharmacy profession is developing activities by way of which pharmacists in pharmacies can take greater responsibility for promoting a healthy lifestyle and the needs of people with diabetes in terms of drug therapy and self-control and self-management of diabetes and can successfully complement the role of the physician and the registered nurse. Since 2018 the assistance of consultant pharmacists who have been trained for their work during specialisation and undergo continuing education has been widely available in the system. A consultant pharmacist can advise people with diabetes on how to take their medication. Consultant pharmacists cooperate with physicians in the context of drug therapy, in particular with regard to possible side effects and interactions between



drugs. They are available on the premises of the healthcare centre. They recommend dose adjustments or drug substitutions to the family doctor in the form of a medical report; the family doctor then decides on the appropriateness of the proposed changes.

The pharmaceutical profession implements a pharmaceutical care programme with pharmaceutical care facilitators for arterial hypertension and diabetes. Pharmaceutical care facilitators undergo additional professional training and ongoing education. Pharmaceutical care means the responsible provision of drug therapy to achieve positive final outcomes. Its purpose is to optimise health-related quality of life of the person with diabetes.

The competences of a pharmacist with a master's degree include:

- the provision of pharmaceutical care in drug therapy and treatment methods with medical devices and in the prevention and early detection of the disease and
- counselling in self-medication and pharmaceutical care (assessing the severity of a patient's health condition, deciding on the type of consultation and evaluating the proposed self-medication).

The purpose of pharmaceutical counselling is to optimise and rationalise the person's use of medicines in order to improve or maintain the health-related quality of life of a person with diabetes. At the same time, the aim is to advise people with diabetes on healthy lifestyle and the importance of regular blood pressure monitoring and/or glucose self-measurement.

The pharmaceutical profession is introducing two cognitive services. They include the review of medication use and a pharmacotherapeutical review.

A review of medication use is a service for optimising and rationalising an individual's medication therapy with a view to improving and maintaining their health-related quality of life. The review is provided by a pharmacist with a master's degree and the relevant competences on the basis of information on the medications used and information provided by the individual or their guardian. The main focus of the review of medication use is on the review of drug therapy from the perspective of the person with diabetes and their understanding of medication-assisted treatment and medication use.

A pharmacotherapeutical review is a service for optimising and rationalising an individual's drug therapy with a view to improving and maintaining the individual's health-related quality of life; it is provided by a pharmacist with a master's degree, a clinical or pharmacy specialist with appropriate competences, on the basis of information on the prescribed or used medicines and all relevant clinical information concerning the person's medical condition and information provided by the physician and/or person with diabetes (or their guardian).

The pharmacotherapeutical review is based on the identification of medication-related problems and measures and recommendations provided to the physician to prevent and resolve these problems. This involves the consideration of actual and potential medication-related problems from the aspect of their effectiveness and safety or the burden which the use of medication imposes on a patient. Important are also the economic outcomes of inappropriate drug therapy for the Slovenian healthcare system.

Guidelines until 2030:



- clearly define the right of people with diabetes to be included in the diabetes-related pharmaceutical care programme;
- clearly define the right of people with diabetes included in the diabetes-related pharmaceutical care programme to two cognitive services: the review of medication use and the pharmacotherapeutical review;
- clearly define the right of pharmacists in pharmacies to identify people with diabetes in need of either of these cognitive services and to refer people with diabetes to the provider of individual services;
- clearly position the participation of pharmacists in pharmacies in the care of persons with type 2 diabetes;
- strengthen and develop the activity of a consultant pharmacist;
- strengthen and develop the cognitive services of pharmacists in pharmacies.

Effective and quality care of a person with type 2 diabetes is based on the work of qualified healthcare professionals, a good flow of information on the person and their disease, and ongoing communication and opportunities for consultation between different healthcare professionals.

Continuous education of healthcare professionals and their training in teamwork and in participating in ongoing communication and consultation channels and information about the person with diabetes accessible to all are the foundations of efficient cooperation of healthcare professionals in the healthcare team.

#### Guidelines until 2030:

- strengthen and establish continuing training for all healthcare professionals with an emphasis on the skills needed for teamwork in which the person with diabetes actively participates;
- ensure that information on persons and their disease is available to all team members, in particular with the use of information technology.



## 5. TYPE 1 DIABETES: A PERSON WITH DIABETES MIMICS THE FUNCTION OF THE PANCREAS

Type 1 diabetes is caused by the complete destruction of the insulin-producing cells in the pancreas. Currently, no one knows how to prevent the disease and it is incurable. As soon as the disease is detected, immediate treatment with insulin is needed. Non-treatment can lead to death. Approximately 4% of all people with diabetes have type 1 diabetes. The prevalence is increasing year by year and so is life expectancy and thus the number of persons with this form of diabetes is growing. Younger people are more likely to suffer from this disease, usually children and adolescents, which affects the entire family. Care for people with type 1 diabetes takes several decades and involves guiding the individual through many stages of life. It often goes beyond the care of the person with diabetes and includes family support. All persons with type 1 diabetes are treated by a diabetes team at the secondary and tertiary levels.

The purpose of care for persons with type 1 diabetes is to provide a good quality and fulfilling life with as few limitations as possible. We aim to prevent acute complications and prevent or delay chronic complications and bring the survival rate of persons with type 1 diabetes closer to that of persons without diabetes. Education is therefore very demanding.

People with type 1 diabetes need a lot of knowledge; they have to acquire a lot of skills and be well motivated for self-care. In their behaviour they must as closely as possible mimic the function of a healthy pancreas. This requires frequent blood sugar monitoring, on the basis of which a person with type 1 diabetes must act accordingly by taking the right dose of the right type of insulin and adjusting his or her meal or physical activity. People with type 1 diabetes must learn to take the right decisions and have confidence in the reliability of their decisions.

Educating people with type 1 diabetes is extremely demanding. They must have the basic knowledge of metabolism and food composition. They need to be able to assess the carbohydrate content and the type of carbohydrate in a food and adjust their insulin dose accordingly. They must also know how to adjust the insulin dosage in certain conditions, such as a sudden illness or major mental stress. If they make a wrong judgement, the blood sugar may rise excessively or fall below the standard range, which is called hypoglycaemia. This condition is the most common complication in insulin treatment and the person with type 1 diabetes must identify it and consume food that contains carbohydrates. If a further drop of blood sugar is not prevented, serious health problems or even loss of consciousness may occur. The objective of treatment is therefore to achieve a normal blood sugar level along with an acceptable risk of hypoglycaemia.

Guidelines until 2030:

- provide and strengthen effective educational methods and approaches to strengthen health literacy and support the process of empowerment for successful self-management, in particular for decision-making in often complex life situations;
- provide and strengthen continuous, flexible and accessible education;
- provide and strengthen the training of health team members at the secondary level of healthcare to cope with such demanding tasks.



The methods of treatment of type 1 diabetes are constantly evolving.

More and more modern insulins and systems for self-control of blood sugar and insulin delivery systems are available, which together with information technology help persons with type 1 diabetes make decisions on insulin treatment. New treatment methods, such as transplantations, are also being tested.

Guidelines until 2030:

- monitor the development of new and effective treatment methods and put them into practice in an efficient way;
- ensure adequate availability of modern, effective and safe treatment methods;
- reduce the burden of the disease, including ensuring the availability of new technologies if they truly reduce the burden.

Families and other persons close to people with type 1 diabetes are also involved in their care. Other specially qualified people with diabetes or their families and friends can offer people with diabetes support to persevere in effective self-care management.

The care of sick children and adolescents also involves the engagement of their families and other persons who are close to the children and adolescents or meet them frequently, for example kindergarten and school teachers. However, with the involvement of others in care planning, the equal participation of the person with diabetes themselves in the healthcare team should not be overlooked.

The support of the family and friends ensures more continuity and perseverance, which are important for successful self-care. People with diabetes themselves, their relatives or other persons affected by diabetes can provide invaluable support to other people with diabetes, provided they are adequately and additionally qualified in this area.

Guidelines until 2030:

- strengthen the appropriate involvement of family and friends in the care of people with diabetes;
- upgrade and establish training and organised action of people with diabetes or their families and friends to support other people with type 1 diabetes and their families and friends;
- strengthen support to kindergartens and schools in the work with children and adolescents with diabetes.

Care should provide for early detection of complications and their quality treatment.

As a rule, the care of people with type 1 diabetes takes many decades. Twenty years after the development of type 1 diabetes, 80% of people have diabetic retinopathy, while after 30 years, almost every person with type 1 diabetes has this disease. After 30 years every second person develops diabetic nephropathy. Persons with diabetic nephropathy are 40 times more likely to suffer from cardiovascular disease.

All complications can be treated effectively at an early stage and it is therefore very important to detect them as soon as possible. In this case, too, clinical guidelines serve as the professional background, while clinical pathways and cooperation protocols are the



organisational form which facilitates the implementation of clinical guidelines when various healthcare professionals work together.

Guidelines until 2030:

- develop and update Slovenian clinical guidelines for the management of type 1 diabetes;
- set up clinical pathways for the management of type 1 diabetes;
- improve access to early detection and treatment of complications caused by type 1 diabetes.

All people who have developed the disease in childhood and adolescence are treated in a paediatric diabetes clinic. The transition of treatment from adolescence to adulthood must be seamless and provided to all. People who develop the disease in adulthood are cared for by health teams at the secondary level of healthcare.

While the organisation of detecting the disease and the care of people with type 1 diabetes is easier due to the smaller number of patients and the acute clinical presentation, the care, and in particular education, are very demanding and complex. At the transition from adolescence to adulthood, these individuals need a particularly well planned treatment. The current organisation is appropriate and development-oriented.

Guidelines until 2030:

- strengthen and ensure a seamless transition of care for people with type 1 diabetes from adolescence to adulthood.



## 6. CHRONIC COMPLICATIONS OF DIABETES: STROKE, HEART ATTACK, KIDNEY FAILURE, BLINDNESS, AMPUTATION

Over many years, diabetes can harm various organs of the body. The damage of the organs is the result of damage to blood vessels which deliver blood to these organs. If large arteries are damaged, we speak about macroangiopathy, while in the case of damage to small arteries we speak about microangiopathy.

Macroangiopathy is a disease caused by atherosclerosis. The disease also affects people who do not suffer from diabetes, but it is more common in people with diabetes who develop the disease at an earlier age and in a more severe form. The clinical presentation depends on the arteries that are most affected and can be manifested as stroke (cerebrovascular disease), heart attack and angina pectoris (cardiovascular disease), or narrowing of the arteries in the lower limbs, which causes difficulties in walking and gangrene, which can lead to the amputation of the lower limbs. Atherosclerotic cardiovascular disease is three to five times more common among people with diabetes. Diabetes presents a twofold risk for atherosclerotic cardiovascular disease independent of other risk factors. People with diabetes face a two to four times higher risk of stroke. People with diabetes face a two to four times higher risk of these diseases and as many as three out of four people with diabetes die from one of these complications. The course of these diseases is generally also manifested in a more severe form than in the case of persons without diabetes.

Microangiopathy is a process where small arteries are damaged; this disease is characteristic of diabetes. It mainly causes damage to the kidneys, eyes and the nervous system. The diseases are called diabetic kidney disease (diabetic nephropathy), diabetic retinopathy and diabetic neuropathy. Diabetic kidney disease affects at least one in three people with diabetes and is the most common cause of kidney failure. Diabetic retinopathy, a damage to the micro vessels that supply the retina, is a common chronic diabetes-related complication that can cause severe visual impairment or blindness. It affects 30 to 40 percent of people with diabetes, and after 20 years of having diabetes, 80 percent of persons with type 1 diabetes suffer from retinopathy, while after 10 years, retinopathy affects 50 percent of persons with type 2 diabetes. Approximately 5 percent of people with type 2 diabetes have the advanced form which causes visual impairment. It is most common in long-standing type 1 diabetes, but it also occurs in older people who suffer from diabetes and high blood sugar levels for longer periods. It is the most common cause of blindness and in developed countries the most common cause of blindness among the working population. Diabetic neuropathy, a nerve fibre disorder, can affect all parts of the nervous system and is often difficult to diagnose and treat. Approximately 60 to 70 percent of people with diabetes suffer from a mild to severe nerve damage (neuropathy), which occurs as a result of microangiopathy and hyperglycaemia and is one of the chronic complications of diabetes. Most common and most serious is the nerve damage in the feet, which become less sensitive and are therefore also more prone to damage. Impairment of the nerves of internal organs can lead to problems with blood pressure and heart rate regulation and in extreme cases even to sudden death caused by cardiac dysfunction. Diabetic neuropathy can also be associated with pain and other unpleasant sensations that are difficult to treat. This type of neuropathy impairs the quality of life, as it affects emotional stability, sleep, mobility and work ability; its treatment is complex and not always successful. It may also cause balance disorders, bowel problems, lack of protective sensation when the blood sugar levels are too low (hypoglycaemia) and erectile



dysfunction. Nerve impairment and reduced blood supply to the feet are together the most common causes of lower limb amputations, which are 15 or more times more common in people with diabetes than in people without it. Disease changes in the feet which result from tissue damage along with diabetic neuropathy or from reduced blood supply are described by the term "diabetic foot". The presence of diabetes greatly increases the risk of peripheral arterial disease and in addition accelerates its progression. 15% of people with diabetes have diabetic foot ulcer at least once in their lifetime. This is usually the initial cause that, if complications occur, can lead to amputation. Without taking preventive measures following direct wound-related interventions, such people with diabetes have more than one recurrence a year. Each new episode potentially increases the risk of lower limb amputation. In more than 80% of amputations, people with diabetes previously suffered from foot ulcers. The main contributors to the higher incidence of amputations in the case of diabetes are neuropathy, angiopathy (circulatory disorders) and other risk factors for vascular damage: arterial hypertension, hyperlipidaemia, smoking, lack of exercise and obesity. Chronic complications of diabetes often also cause mental disorders. The importance of correct oral hygiene and oral health are also often overlooked in the care of people with diabetes. Dental and oral diseases are more common in persons with higher blood sugar levels.

Chronic complications of diabetes are an important cause of morbidity and of premature death and decrease the quality of life of people with diabetes. The treatment of chronic complications caused by diabetes is also the largest financial burden in the care of people with diabetes, and care is therefore focused on the prevention of complications, their early detection, and immediate, high-quality, effective and safe treatment.

Chronic complications can be prevented by leading a healthy lifestyle and treating high blood sugar, blood pressure and lipids. Integrated care of all these conditions is a very challenging task in terms of content, implementation and organisation.

The substantive basis for the prevention and care of chronic complications of diabetes are the clinical guidelines, which often involve several medical specialities and are frequently changing due to new knowledge. The preparation of clinical guidelines for the care of people with diabetes therefore involves doctors from different medical specialties, nurses and other healthcare professionals. In order to ensure that people with diabetes are treated in a special way, as a rule diabetologists should also be involved in the development of clinical guidelines for diabetes-related conditions. A specific aspect of the preparation of the guidelines is an approach where a member of the expert group drawing up the guidelines is also a person with diabetes specifically trained for this task. The next step is to bridge the gap between the written knowledge and everyday clinical practice. Tools to help implement the clinical guidelines are clinical pathways and cooperation protocols at the system level, which describe the agreed cooperation between healthcare levels, and annual diabetes care reports at the level of individuals with diabetes, which include a care plan agreed between healthcare professionals and the person with diabetes. Information technology with clinical decision support can also be helpful in the preparation of annual reports and individual care plans. Clinical pathways should ensure timely accessibility of health information about the health of individuals with diabetes and include communication and consultation channels between healthcare professionals. Due to the high organisational and financial burden, it is important to use resources efficiently. Persons with diabetes also need understandable and clear health-related information, in





particular information which they themselves consider important. Standards of care have been developed to help organise care in the case of chronic complications.

*Explanation: Standards for the organisation of diabetes-related care (adapted from the Clinical Guidelines for Clinical Treatment of Type 2 Diabetes, 2016)*

*Standard 2. Coordinated treatment across levels, between professions and in the team*

*Different healthcare professionals have access to individualised care plans coordinated with the person suffering from diabetes. The common goals are clearly defined and accessible to all team members. Accessibility of care plans enables teamwork, continuity of care and consistency between professionals. In the structured care programme, the following has been clearly defined:*

- *the content of care and the processes of care based on clinical guidelines and protocols,*
- *the division of care and integration among levels of healthcare, disciplines and professional groups by defining which healthcare professional is responsible for providing specific aspects of care,*
- *criteria for referral and*
- *the means of information exchange.*

*Standard 3. A person with diabetes is actively involved in care-related decision-making*

*All persons with diabetes have equal access to information and multidisciplinary and structured education programmes that are tailored to the needs, wishes and characteristics of each individual.*

*Standard 4: Multifactorial treatment*

*All persons with diabetes have their HbA1c values measured and documented where necessary for the management and monitoring of treatment.*

*All persons with diabetes have their blood pressure measured and documented where necessary for the management and monitoring of treatment.*

*All persons with diabetes have their blood lipids measured and documented where necessary for the management and monitoring of treatment.*

*Standard 5: Cardiovascular diseases*

*All persons who have associated problems, symptoms or signs related to cardiovascular disease are referred to a specialist for further care and treatment on the basis of a locally agreed clinical pathway according to clinical guidelines and protocols.*

*Standard 6: Eyes*

*All persons with diabetes have access to regular screening for diabetic retinopathy on the basis of a locally agreed clinical pathway and are referred to an ophthalmologist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Standard 7: Foot*

*All persons with diabetes have access to regular screening for diabetic foot on the basis of a locally agreed clinical pathway which provides interdisciplinary care and are referred to an appropriate specialist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Standard 8: Kidneys*

*All persons with diabetes have access to regular screening of diabetic kidney disease on the basis of a locally agreed clinical pathway and are referred to an*



*appropriate specialist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Standard 10. Annual diabetes care reports; planned and extraordinary medical examinations*

*All persons with diabetes have an annual diabetes care report drawn up, which includes a treatment plan and have access to planned and extraordinary medical examinations depending on their disease status. The purpose of these examinations is to monitor the treatment success, to take action where necessary and to support a healthy lifestyle.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

Guidelines until 2030:

- prepare clinical guidelines that take account of advances in knowledge;
- establish an organisation of care in which clinical guidelines are integrated through clinical pathways and cooperation protocols;
- strengthen healthcare teams at all levels of the healthcare system;
- provide and strengthen information support;
- ensure efficient use of funds.

Various medical specialists and other healthcare professionals are involved in the development of clinical guidelines, clinical pathways and cooperation protocols and in the integration of organisational structures.

In addition to family doctors, diabetologists and registered nurses who provide basic care for people with diabetes, also hypertensiologists, lipidologists, cardiologists, angiologists, nephrologists, ophthalmologists, physiatrists, infectologists, cardiovascular surgeons, surgeons for surgical infectious diseases, occupational and sports medicine specialists, psychiatrists, psychologists, pharmacy pharmacists, and many other medical specialists are involved in the prevention and management of complications if necessary.

Guidelines until 2030:

- establish an organisational scheme at the primary level of the healthcare system which provides comprehensive, coordinated and integrated care for people with diabetes;
- ensure continuous professional development and training of healthcare professionals who participate in the care of people with diabetes;
- ensure that all healthcare professionals are professionally and organisationally involved in coordinated and integrated care for people with diabetes.

If any of the complications caused by diabetes occur, people with diabetes need additional support in their healthcare team; also important is support provided by other healthcare professionals or specially trained individuals whose activities are appropriately organised and support from associations of people with diabetes and other non-governmental organisations.

Complications caused by diabetes always affect a person with diabetes physically and mentally. The threat of or a survived stroke, heart attack, kidney failure, blindness or



amputation are serious events in a person's life. In addition to complications and rehabilitation, a person with diabetes also needs psychological support from healthcare professionals and other persons qualified for such tasks.

Guidelines until 2030:

- provide further training for healthcare teams for the provision of additional support to persons with chronic complications of diabetes;
- provide availability of other healthcare professionals, including psychologists, who can be of support to persons with chronic complications caused by diabetes;
- involve associations of people with diabetes and other non-governmental organisations in activities to support persons with chronic complications caused by diabetes.

Successful planning and implementation of care related to chronic complications caused by diabetes require knowledge and monitoring of the incidence and prevalence of these complications.

The epidemiology of chronic complications caused by diabetes is only partially known, but a system for effective monitoring is being put in place. The impact of measures being introduced to care for people with diabetes is not yet fully measurable. Accordingly, when setting up the system of monitoring, the definition of which medical data are required for the monitoring of the incidence of chronic complications caused by diabetes must be taken into consideration. Only if the correct data are systematically captured will electronic health data records make it possible to assess the impacts of measures and provide guidance for further action.

Guidelines until 2030:

- set up and consistently collect key healthcare data in an accessible format to assess the quality of care and plan measures and activities to improve care within the routine care plan and in accordance with the agreed standards.

We need to ensure that appropriate blood sugar treatment is also provided in parts of the healthcare system that does not specifically deal with diabetes.

A person with diabetes encounters many profiles of doctors and other healthcare professionals in the process of diagnosing and treating complications caused by diabetes. Although their actions are focused on the treatment of other diseases and conditions, efficient treatment of blood sugar must also be provided in this phase. In some clinical situations, such as during treatment in an intensive care unit, appropriate treatment of blood sugar means a significantly better outcome of treatment.

Guidelines until 2030:

- ensure that all physicians and healthcare professionals involved in the care of people with diabetes are adequately trained,
- establish and strengthen widely accessible consultation pathways.

The course of cardiovascular disease in people with diabetes is usually more severe than in people without diabetes and may involve uncharacteristic symptoms. To identify and treat these symptoms, all verified diagnostic and therapeutic options must be used.



The treatment objectives related to these diseases are the same as for persons without diabetes, though with an additional emphasis on blood sugar management. The beneficial effects of treatment, both in terms of the alleviation of the problems and the prognosis of the disease, are equal or even greater for people with diabetes than for persons without diabetes.

*Explanation: Standard for the organisation of care in the case of cardiovascular diseases*

*All persons with problems or symptoms associated with cardiovascular disease are appropriately referred to a specialist for further care and treatment on the basis of a locally agreed clinical pathway in accordance with clinical guidelines and protocols.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

Guidelines until 2030:

- achieve the same treatment outcomes as for persons without diabetes;
- provide access to testing methods, effective drugs and treatment methods;
- set up and strengthen the organisation of care so as to provide equal care for all persons with diabetes.

Diabetic nephropathy can be detected early with regular blood and urine tests. If the treatment is introduced early enough, the progress of diabetic kidney disease can be significantly slowed. When kidney function deteriorates, early detection and treatment of complications that occur due to the kidney disease are required.

The purpose of early detection of kidney disease is to detect it when the damage to the kidney tissue is not yet irreversible. Early detection is based on blood and urine testing. The introduction of appropriate tests and their proper implementation and evaluation require close cooperation between laboratory medicine specialists. There are many successful treatment methods and effective drugs at the early stage of kidney failure, but it can sometimes be difficult to choose the optimum option. Due to their high price, some drugs and treatment methods also represent a high financial burden.

As kidney disease progresses, it is accompanied by the disorder of potassium, phosphate and acids concentration in the body, anaemia, problems with fluid retention, body wasting, and poor physical condition. At this stage, the process of deterioration of the kidney function is already irreversible, but by treating the above disorders, the decline in the kidney function can be slowed, which can have a positive impact on the quality of life and prolong the life of the person with diabetes. When the kidneys fail completely, the person with diabetes needs one of the following forms of replacement therapy: haemodialysis, kidney transplantation or, less commonly, peritoneal dialysis. From the first symptoms of diabetic nephropathy until replacement therapy, people with diabetes need regular monitoring and adjustment of many elements of self-care. The transition from one stage of diabetic nephropathy to another sometimes requires a person with diabetes to completely change their eating habits. Foods that were previously recommended may become harmful as the disease progresses. Often treatment of diabetes must also be changed because of the decline in kidney function. Medication regimes are often very demanding, as some medicines need to be taken based on the time of the day, others based on meals



and sometimes medication needs to be injected; in this case the roles of the pharmacist in a pharmacy and consultant pharmacist are of particular importance for the safe and correct use of medicines.

With the many symptoms of the disease and the knowledge that the kidney function decline is inevitable, the person with diabetes is under severe psychological stress. Psychological support provided by healthcare professionals is extremely important and for this reason the inclusion of people with diabetes and kidney disease in diabetes associations and renal healthcare associations should be encouraged.

*Explanation: Standard organisation of renal healthcare*

*All persons with diabetes have access to regular screening for diabetic kidney disease on the basis of locally agreed clinical pathways and are referred to a specialist for further care and treatment in accordance with the clinical guidelines and cooperation protocols.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

Guidelines until 2030:

- ensure access to laboratory and other tests;
- provide access to effective medicines and treatment methods;
- promote comprehensive education for persons with diabetic nephropathy;
- set up and strengthen the organisation of care so as to provide equal care for all persons with diabetes.

Vision loss is prevented through early detection and treatment of diabetic retinopathy and its complications.

Regular examinations of the retina, such as retinal photography, are essential for early detection of retinal disease and timely referral to treatment. Accessibility of retinal examination and appropriate treatment, including surgery, are very important for vision preservation. When vision deteriorates, the person with diabetes and their family and friends should be supported during treatment (measuring of blood sugar and insulin administration) and advised to join the activities of associations of people with diabetes and people with visual impairment.

*Explanation: Standard organisations of vision care*

*All persons with diabetes have access to regular screening for diabetic retinopathy on the basis of a locally agreed clinical pathway and are appropriately referred to an ophthalmologist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

*Explanation: Screening for diabetic retinopathy is carried out systematically in centres for diabetic retinopathy.*

*A person with diabetes is admitted by a registered nurse with specific knowledge in this field, who explains the screening process and records important clinical data, including vision assessment. The registered nurse then carries out a retinal photography with a*



camera specially adapted for this purpose. The image is then examined online by a specialist ophthalmologist, who notes in the medical report whether diabetic retinopathy is present and explicitly states what further action should be taken (such as if no signs of diabetic retinopathy, repeat imaging after one year; if there are signs of diabetic retinopathy with maculopathy, an examination in a specialist clinic is required). The person with diabetes receives the medical report to their home address, including detailed information on the next medical appointment (date and hour). The photographs are stored securely in a legally defined way and are available for follow-up treatment when the ophthalmologist needs to choose the most successful treatment to preserve vision. The network of diabetic retinopathy centres should be such that people with diabetes are provided easy access to these networks; at the same time, the activities of the centres should be carried out at a high quality level and integrated in a uniform system of information flow.

*Source: project of establishing diabetic retinopathy centres.*

Guidelines until 2030:

- provide access to regular retinal examinations and treatment;
- set up and strengthen the organisation of care so as to provide equal care for all persons with diabetes.

Early detection of diabetic neuropathy is required, in particular forms of loss of protective sensation in the feet, which is the most common cause of foot ulceration and can lead to amputation.

By determining the level of risk for tissue damage, foot complications can be prevented through education and other preventive measures. Diabetic foot clinics are set up for the care of persons at a higher risk of diabetic foot or persons with the presence of diabetic foot syndrome. Immediate access to these clinics should be provided. A specific form of diabetic neuropathy is that accompanied by pain, which often requires a very complex treatment.

Although diabetic neuropathy can affect the nerve structure in any part of the body, the main attention is given to the form that causes numbness in the legs and feet. Foot care is an integral part of care for a person with diabetes. A screening test is used to examine the injury to nerves and circulation and define the level of risk of foot tissue injury. With regard to the level of risk, education and further care are planned in order to prevent foot complications. Persons at risk are included in the education programme that includes extended education on diabetic foot. In accordance with the indications, appropriate footwear is advised and prescribed. The diabetic foot care team should include healthcare professionals of various specialties, with a core team consisting of a doctor diabetologist and a nurse with additional expertise in diabetic foot care, working in cooperation with a family medicine doctor, a surgeon for surgical infections, an angiologist, a vascular surgeon, an orthopaedist, a physiatrist and other healthcare professionals. The diabetic foot outpatient clinic should be organised within a diabetology outpatient clinic, or if organised differently, the unit should functionally include a diabetologist and a registered nurse specialised in the field of education.

The level of risk of a person with diabetes developing a foot ulcer should also be considered by a pharmacist in order to advise the person on the choice of foot care products and warn them of the risk related to the use of keratholytics and sharp



instruments. In Western European countries and in North America, specially trained professionals, podiatrists, play a central role in the care of people with diabetes, advising them about diabetic foot. Elsewhere, this profile is not known, though specific programmes are being developed to train relevant professionals. Staff outside the healthcare system who are involved in diabetic foot care must be qualified to perform their activities at a high quality level and be able to reliably identify conditions that should be dealt with by professionals in the healthcare system and to give the person with diabetes the required explanations and guide them appropriately.

The treatment of painful polyneuropathy often requires care in which neurologists and pain management specialists are involved. Persons suffering from this disease often need intensive psychological support.

Diabetic neuropathy can result in erectile dysfunction, which can significantly reduce the quality of life of men and their partners. The treatment of erectile dysfunction also involves an urologist.

*Explanation: Standard for the organisation of foot healthcare  
All persons with diabetes have access to regular screening for diabetic foot on the basis of a locally agreed clinical pathway which assures interdisciplinary care and are appropriately referred to relevant specialists for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

Guidelines until 2030:

- provide access to diabetic foot screening;
- provide access to education and preventive measures tailored to the level of risk of diabetic foot;
- develop and strengthen a network of specially trained professionals to enhance diabetic foot-related care;
- support the organisation of a network of diabetic foot outpatient clinics;
- ensure the establishment of a multidisciplinary team in diabetic foot outpatient clinics;
- ensure rapid and widespread access to diabetic foot clinics;
- ensure the accessibility of care by a neurologist;
- ensure the accessibility of care in pain management clinics;
- provide treatment of erectile dysfunction by a wide range of healthcare professionals;
- provide and strengthen the training of non-professional healthcare workers in quality and safe foot care and in the identification of conditions that fall under the care within the healthcare system;
- set up and strengthen the organisation of care so as to provide equal care for all persons with diabetes.

Persons with diabetes, in particular those facing complications, are more likely to suffer from mental disorders.



The impact of diabetes on mental health has not yet been fully explained. Children who fall ill before the age of five are strongly predisposed to behavioural disorders. Adults have more memory problems than their non-diabetic peers.

Depression is the most common mental disorder faced by people with diabetes and is twice to three times more common than in the general population. Approximately 30 percent of people with diabetes suffer from depression and the strongest predictors for its development are female sex, middle age, less than secondary education and at least two diabetes-related complications. Recurrence is several times more common than in persons with depression who have no associated organic diseases. The assessment of depression is more difficult due to the simultaneous existence of organic diseases which may have similar symptoms to depression. In addition to the fact that depression is usually not considered in everyday work with people with diabetes, this is probably the reason that only one-third of people with diabetes are diagnosed with depression.

Anxiety, too, is twice as common as in the general population, and with phobic disorders the situation is similar. People have fear of blood, of needles and of injuries when being injected with insulin and getting blood drawn for blood sugar measurements and are afraid of excessively low blood sugar levels (hypoglycaemia). The three complications most commonly associated with mental disorders are large artery diseases, diabetic foot and diabetic proliferative retinopathy, while anorexia and bulimia are more common in younger women with diabetes.

Guidelines until 2030:

- include mental health contents in the education of people with diabetes;
- raise the awareness of people with diabetes and a higher risk of mental problems about the importance of mental health;
- ensure timely and early detection of mental health problems and provide appropriate treatment;
- ensure adequate access to mental health programmes in health promotion centres.

Dental and oral diseases are more common in persons with higher blood sugar levels. Treating gum diseases protects the teeth and improves the regulation of blood sugar.

Oral hygiene and oral health are often overlooked in the care of people with diabetes. The inflammation of periodontal tissues – i.e. periodontal disease – which is associated with insufficient and improper oral hygiene is most common in persons who have had high blood sugar levels over a longer period of time.

Guidelines until 2030:

- raise the awareness of people with diabetes of the importance of oral hygiene and regular visits to the dentist;
- include oral health contents in the education of people with diabetes;
- educate healthcare professionals about gum diseases;
- establish links between dentists and healthcare teams which provide care for people with diabetes.





## 7. WHEN HEALTH COMPLICATIONS SUDDENLY OCCUR, TIMELY TREATMENT AND A PLAN OF HOW TO MOVE FORWARD ARE REQUIRED

People with diabetes are more frequently admitted to hospitals than persons without diabetes. Sometimes (depending on the problem) hospital admission is necessary already at the time diabetes is detected and if it is accompanied by severe dehydration (diabetic hyperglycaemic hyperosmolar syndrome) or acidosis (diabetic ketoacidosis), also known as acute complications of diabetes. Persons who have already been diagnosed with diabetes also develop other conditions which require hospital treatment just like other people, but their treatment usually takes longer. Sometimes hospital treatment is required due to advanced forms of chronic complications or due to such a drop of blood sugar that loss of consciousness results (severe hypoglycaemia, which is the third acute complication of diabetes). Regardless of the reason for admission to hospital, a person with diabetes needs advice on how to proceed with the treatment after discharge, including diabetes management: whether to change medicines, doses or the frequency of blood sugar measurements and similar.

Healthcare should be organised to provide long-term care (for example regular scheduled check-ups for diabetes care) when something goes wrong but the condition is not severe (emergency check-ups for diabetes care) and treatment in the event that the condition deteriorates rapidly (for example severe pneumonia in a person who also has diabetes). The care received by a person with diabetes is at a high quality level if all parts of the healthcare system are coordinated and integrated.

Most diabetes treatment is carried out in the family medicine team and in the diabetes team, i.e. in outpatient clinics where regular scheduled and emergency check-ups are carried out. When the person's health condition deteriorates rapidly, the treatment mostly takes place in hospitals. Due to the diversity of these conditions, the approach to treatment varies and people with diabetes need coordinated and integrated care. In hospitals, special attention is therefore devoted to discharge planning, while more complex cases are taken over by the discharge coordinator. The planning of outpatient care after discharge requires cooperation with members of the family medicine team, the home care service and often also social services and other healthcare professionals, including case coordinators in the future.

*Explanation: Standard of care organisation in case of acute conditions*

*All persons with diabetes and diabetes-related acute conditions (severe hypoglycaemia, diabetic ketoacidosis and diabetic nonketotic hyperosmolar syndrome) or other acute conditions have immediate access to care and treatment on the basis of a locally agreed clinical pathway in accordance with the clinical guidelines and protocols. After the completed treatment of an acute condition, they are actively referred to regular diabetes care on the basis of a locally agreed clinical pathway. The care is focused on the prevention of recurrence of the acute condition.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

Guidelines until 2030:



- ensure and strengthen adequate access to the treatment of acute conditions in emergency centres;
- ensure and strengthen the health literacy of people with diabetes in terms of timely and appropriate use of emergency centre services and avoidance of too frequent and unnecessary visits;
- ensure and strengthen the availability of outpatient care (outside emergency centres) and the possibility of consultations when a person with diabetes is in doubt about sudden changes in their health condition, including the use of information technology and other innovative means;
- ensure and strengthen the role of the discharge coordinator in hospitals and provide training for healthcare professionals with regard to the particular characteristics of diabetes;
- support the development of clinical pathways and cooperation protocols for this field.



## 8. TO LIVE A QUALITY LIFE, PEOPLE WITH DIABETES NEED KNOWLEDGE, UNDERSTANDING AND SKILLS AND AN ENVIRONMENT IN WHICH THEY CAN PARTICIPATE IN THE DECISIONS ON THE TREATMENT OF THEIR DISEASE

Diabetes is a huge burden for the person with diabetes. It very often occurs simultaneously with high blood pressure and high cholesterol levels. More than 80 percent of people with diabetes are overweight or obese. Medical treatment of all these conditions is extremely complex and cannot be based on only a few visits by people with diabetes to a health facility. It requires people with diabetes to be actively involved and to become an equal member of the healthcare team. In order to maximise the outcome of treatment, they must be competent and willing to take diagnostic and therapeutic decisions in their everyday life. They must be skilled in using medical devices, such as glucometers and blood pressure monitors. They must be able to evaluate the measured values and make decisions on the basis thereof. They must have a detailed knowledge of the characteristics of the disease and the importance of a healthy lifestyle and weight reduction.

As the disease progresses and complications arise, the burden of the disease increases. Without constant support of the healthcare team, the family and the environment, the psychological burden can become too great for a person with diabetes, which further worsens their condition.

The healthcare team must provide the person with diabetes with clear and credible information on diabetes and associated conditions. Together, they must establish an appropriate attitude towards the disease and plan care in which the person with diabetes plays a central role. The team must also provide psychological support.

The task of the healthcare team is thus to provide people with diabetes with knowledge, motivation and skills for action and understanding (health literacy) related to diabetes and reinforce their knowledge, motivation and skills, create an environment in which people with diabetes are able to take their own decisions on what is important to them (empowerment), and support successful self-management and self-care for the best possible quality of life.

*Explanation: Health literacy, empowerment, self-management and self-control*  
*Health literacy means that an individual has the knowledge, motivation and ability (competences) to access, understand and evaluate health information and to use the information to make an assessment and take a decision on healthcare, disease prevention and health promotion in order to maintain and improve the quality of their life in the given situation and in the future.*

*Empowerment is a process that enables persons to increase their control over their own lives and strengthens people's ability to take action on issues they themselves consider important.*

*Diabetes self-management means that a person with diabetes takes action on the basis of diagnoses and self-control; self-control primarily means that people measure their blood glucose level themselves, which can also include self-monitoring of urine glucose and ketones in blood or urine.*

*In the broadest sense, care for health is described by the term "self-care", which includes not only self-management of glycaemia, but also the control of other risk factors for*



*cardiovascular diseases, detection of chronic complications and care for one's general health condition.*

All these tasks of the healthcare team are covered by the term "education of a person with diabetes". The aim of all those involved in education is that persons with diabetes are motivated, acquire adequate health literacy skills and day after day make optimum decisions important for the treatment of diabetes and the individual as a human personal whole, which is also known as empowerment. The overall involvement in the treatment of diabetes, participation in the management of high blood sugar and cholesterol, care for early detection of chronic complications and comprehensive treatment of complications when they arise, and participation in the care for one's general health condition is referred to as self-care. The tasks of the healthcare system are effectively complemented by family and friends, associations of persons with diabetes, and individuals with diabetes adequately trained and organised to provide such support.

Persons with diabetes usually take their own decisions about daily self-care without any direct contact with the healthcare system.

Daily diabetes-related self-care requires a high level of knowledge and skills on the part of persons with diabetes. To be able to participate equally with other members of the healthcare team, the persons must be motivated and appropriately accepted by the team. The healthcare team should also provide persons suffering from diabetes with a safe environment which does not judge their behaviour but guides and encourages them to make choices that lead to the set goal.

Guidelines until 2030:

- equally include persons with diabetes in the healthcare team and establish a partner relationship between the person with diabetes and other members of the healthcare team based on cooperation, co-responsibility and equality;
- establish a safe environment within the healthcare team that supports people with diabetes to make correct decisions;
- provide conditions for the empowerment of people with diabetes to become equal members of the healthcare team;
- train healthcare teams to build partnerships with people with diabetes;
- provide conditions for the empowerment of people with diabetes to take independent decisions in diabetes-related self-care;
- establish permanent evaluation of cooperation between the person with diabetes and the team.

*People with diabetes have different opportunities and abilities to participate in self-care and this is taken into consideration in the treatment planning.*

The different abilities of people with diabetes should not be a reason for inequalities in treatment. Cooperation with close family members and friends in the management of diabetes can be of support for the person with diabetes, and the family members and friends should therefore be involved in the care where appropriate. Sometimes, when the person with diabetes is not able to manage the treatment themselves, participation of family members and friends in treatment is urgent. It is, however, often difficult to involve family members in care because of their work commitments.



#### Guidelines until 2030:

- strengthen and develop innovative systems to help people with diabetes to manage their diabetes self-care;
- strengthen and develop systems to support family members when their involvement in diabetes care is desirable or necessary (for example better access to care in social care institutions).

Comprehensive self-care means that a person with diabetes successfully manages their blood sugar, blood pressure and lipids and includes care related to the detection of chronic complications caused by diabetes and care for the general health condition.

In the past, people with diabetes only received information on the success of diabetes treatment when they visited the doctor to undergo an examination. Today, through self-control, i.e. blood sugar measurements at home (sometimes also ketone measurements in blood and urine), people with diabetes can monitor the success of their diabetes treatment on a daily basis themselves. For these measurements, they need reliable and simple medical devices the availability of which should be optimal. On the basis of the measured blood sugar values, people with diabetes can adjust their daily meals or physical activity or change their insulin doses. All these activities are called self-management of blood glucose. In addition to self-management of blood glucose, self-care also includes self-management of blood pressure and lipids, care related to the detection of chronic complications caused by diabetes and their treatment, and care for the general health condition. For all this, people with diabetes need adequate health literacy and support in the process of empowerment, which is also the objective of comprehensive education for successful diabetes self-management and self-care.

#### Guidelines until 2030:

- strengthen and provide coordinated education for comprehensive self-care;
- strengthen adequate access to education for comprehensive self-care;
- strengthen the availability of medical devices for blood glucose and blood pressure self-management.

Education of people with diabetes is a constituent part of healthcare and is one of the basic activities of healthcare teams. Due to the complexity of education, healthcare team members need a number of additional and specific skills.

The basic purpose of education is not only to transfer knowledge by providing credible information and strengthening health literacy, but also to establish conditions for empowering people with diabetes to take care of themselves. Therefore, members of the healthcare team need to have knowledge and skills in different areas. Teams can be composed of a variety of healthcare professionals, i.e. various specialist doctors, registered nurses with various special skills, other nurses, a dietician (nutritional counsellor), a foot-care specialist, a psychologist, a social worker, a physiotherapist, a pharmacy pharmacist and others. In Slovenia, a healthcare team at the secondary level of healthcare (diabetes team) consists of a physician and a registered nurse with special skills in diabetes education (sometimes also called an educator). Formal training is provided in accordance with the rules of the Chamber of Nursing. In addition, functional education is organised. The registered nurses now have all the knowledge needed by a



person with diabetes, but in the future it would be advisable to also include healthcare professionals and professionals from other fields in the healthcare teams. Cooperation between a physician and the registered nurse must be constantly nurtured and improved, as the quality of care depends on it.

Since 2011, healthcare teams at the primary level have been gradually expanded by introducing new tasks for registered nurses who are specially trained for this purpose and have specific knowledge and skills to work in family medicine. In relation to the education of persons with type 2 diabetes, the role of registered nurses is very important in providing brief and credible information when the person with diabetes needs it. Being able to have regular contact with people with diabetes, registered nurses can recognise the level of motivation of people with diabetes and can increase it. They can also inform people with diabetes on the programmes and activities in health promotion centres or health education centres, refer them to these programmes if they express interest, and also monitor them after the programmes have been completed. In the role of diabetes care coordinators, registered nurses can help people with diabetes improve health literacy, create an environment where the empowerment process takes place, and support the ability of people with diabetes to manage diabetes as independently as possible and to make decisions that improve their lives. In having an overview of the entire health condition of the person with diabetes, i.e. not only as regards diabetes, a specialist in family medicine can, together with such an extended team, practise family medicine more successfully, as family medicine includes both proactive care for the health of the population and curative activity.

Since 2015, health education centres existing since 2002 have been upgraded to health promotion centres, which introduces two new education programmes for the education of persons with type 2 diabetes, the possibility of shorter individual consultations, and, focusing on the community, a high-quality upgrade of all activities which are being carried out in individual environments with regard to diabetes. In addition, health promotion centres also provide new and updated programmes in healthy eating, physical activity, weight management, smoking cessation, stress management and similar; these programmes also improve the accessibility of health literacy in a broader sense and support the process of empowerment for a high-quality life at the choice of each individual.

For all people with type 1 diabetes and women with gestational diabetes, care is provided in its entirety at the secondary and tertiary levels.

The pharmacist in a pharmacy with whom a person with diabetes is in frequent contact is involved in the education on the correct and safe use of medicines, advises on over-the-counter medicines, and helps the person with diabetes handle and use medical devices for treatment and care. Since 2018 the activity of a consultant pharmacist has been integrated in the system.

Guidelines until 2030:

- provide continuous education and training for team members which also includes internationally recognised education and training;
- develop and introduce new education and training programmes for professionals not yet available in our system (diabetic foot specialists, dieticians/nutritionists, kinesiologists/physical exercise counsellors, psychologists and similar);



- ensure greater availability of other healthcare professionals with specific skills that could be integrated in healthcare teams;
- strengthen the development of uniform clinical guidelines, clinical pathways and cooperation protocols for the entire field of education;
- strengthen and develop bi-directional links between the activities of pharmacists in pharmacies and consultant pharmacists and other members of the healthcare team.

In structural education programmes focused on various contents and targeted at various groups of people with diabetes, group education and individual education are intertwined and complemented.

Education is a continuous process that lasts throughout treatment, usually for life. The form of education must be adapted according to the educational content, the abilities of the people with diabetes, and the availability of human and material resources and of time to each team. At the time diabetes is diagnosed, education should be designed in a different way than at the time of introduction of insulin therapy. Education is most successful when it is carried out in a group. For a person with diabetes, participation in a group can be a strong motivating factor, and the acquisition of knowledge and, in particular, changes in lifestyle habits are generally more successful. In a group, if properly guided by an appropriately qualified professional, people with diabetes can more easily evaluate the deficiencies, advantages and feasibility of their own goals, learn about the solutions and problems of other people with diabetes in a similar situation, are more motivated, because they can make their decisions on their own, can more easily choose optimal goals, find their own solutions through discussions, and realise that failures are part of changes and how to cope with them; in addition, a group dynamic is developed which sometimes brings people with diabetes together even after the educational programme has been completed. However, some topics are not suitable for such education or not desired by people with diabetes, so individual treatment must be available. Individual treatment can also support people with diabetes to get more successfully integrated in the work of the group. Education can take place through face-to-face contact or the use of information technology.

Education should be available to people with diabetes at the time of diagnosis, at certain turning points in the course of the disease (for example at the beginning of insulin treatment), at regular periodic self-care assessments and at their request.

Guidelines until 2030:

- structure and unify education programmes,
- develop and implement education programmes of different levels of difficulty for persons from vulnerable groups;
- encourage, educate and train all those who work in the field of education to conduct group education activities;
- provide training for individual education for all those who work in the field of education;
- strengthen education through the use of information technology and in other innovative ways;
- ensure optimal accessibility of all education programmes,



- systematically monitor and integrate the perspectives of persons integrated in the programme.

Educational evaluation is the process of looking for effective educational programmes, methods and skills.

The effectiveness of education can be measured in terms of achieving the objectives of diabetes treatment (regulation of blood glucose, pressure and lipids), although these are not the only important indicators. Evaluation of education needs to include indicators of the flow of patients through the system (for example an increased number of people with diabetes where the same level of diabetes control is achieved), indicators of the satisfaction of people with diabetes with care and their diabetes-related quality of life, and indicators of the satisfaction of other healthcare team members. By monitoring and evaluating our own work, education is continuously evolving, enabling the exchange of good practices locally and at the national and international levels.

Guidelines until 2030:

- establish and strengthen continuous monitoring of efficiency in education;
- encourage the exchange of good practices in education.

Team-based planning strengthens the continuity and persistence of people with diabetes in self-care and keeps them motivated.

When people with diabetes are included equally in the healthcare team, care can be planned by way of an agreement between all members of the team, which is called team-based care planning. The motivation of people with diabetes and their ability to participate in the treatment are much higher when they can equally co-decide in the planning of treatment and the entire diabetes care. The plan should cover a realistic period, for example a period of one year. The agreement should be clear and made in writing, because commonly agreed goals guide the actions of all team members. Part of the team care planning is an education plan, which, in addition to regular periodic education, may involve special education, for example when introducing insulin therapy.

Guidelines until 2030:

- support team-based care of people with diabetes.

Structured education and team-based care planning are based on clinical guidelines. We provide equal access through clinical pathways, cooperation protocols and appropriate resources required for education.

All the described mechanisms are already available in Slovenia; they are, however, not yet clearly defined, especially in terms of which healthcare system structure has the task, competence and responsibility to set up and implement these mechanisms. The conditions for education vary greatly between individual outpatient clinics at the secondary level, while at the primary healthcare level education is being intensively established, but its accessibility is still very limited.

Guidelines until 2030:



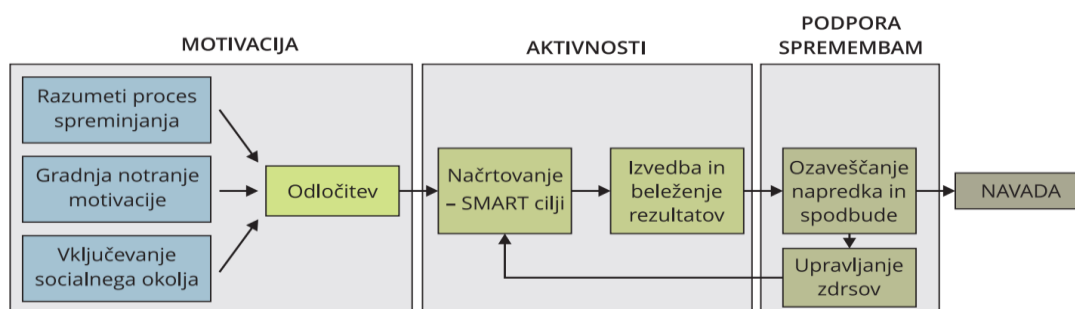


- prepare clinical guidelines, clinical pathways and cooperation protocols for structured education and team-based care planning;
- support and strengthen access to education at the primary healthcare level;
- create conditions for effective education (didactic aids, modern teaching aids, appropriate facilities, appropriate approaches and other) at all healthcare levels.

Doctors, registered nurses and other healthcare professionals should also be educated and trained in psychological skills, communication skills, and andragogical and pedagogical techniques.

Education is the joint responsibility of people with diabetes and various healthcare professionals and professionals from other fields working in healthcare. Providing information alone is not enough for successful education. Communication skills and various motivation techniques and techniques to support permanent changes in lifestyle help people with diabetes to transform information into inner motivation, plan and implement their activities, and manage failures successfully in order to be able to take care of their health on a daily basis. Quality work of professionals requires specific knowledge on the development of adults and their abilities, which is why education also involves andragogy. The same applies to the education of children and adolescents, where pedagogical sciences are involved. Successful education requires permanent training and education, cooperation with other professionals and the exchange of opinions, the monitoring of one's own work, the development of educational skills, team work skills, and, last but not least, efficient use of resources. This work is also extremely demanding from the psychological aspect, and therefore mechanisms must be put in place to disburden professionals and prevent their occupational burnout.

### MODEL SPREMINJANJA NAVAD



Model jasno ponazarja tri ključne procese, ki potekajo pri spreminjanju navade (motivacija, aktivnost in podpora spremembam), ki bodo v nadaljevanju podrobneje razčlenjeni.

### Guidelines until 2030:

- strengthen and develop education and training of healthcare professionals in psychological and communication skills and in andragogical and pedagogical techniques;
- strengthen and develop ways to prevent occupational burnout.



A properly trained person with diabetes whose activities are appropriately organised can support other people with diabetes to persevere in successful diabetes self-care and help create an environment which brings life with diabetes to a higher quality level.

Maintaining the continued ability of a person with diabetes of self-care is a task that exceeds the capacity of the healthcare system. Specially trained individuals, either people with diabetes or other persons affected by diabetes (e.g. their family and friends), can provide strong emotional, social and practical support to other people with diabetes in specific organised forms. They can also advocate for better quality of life with diabetes in the local community through involvement in other diabetes self-management programmes and at the regional and national levels. For this reason, the healthcare system cooperates with associations of people with diabetes or adequately qualified individuals at many levels and in different ways to provide care to people with diabetes.

Guidelines until 2030:

- establish a system of training and organised action for specially trained individuals who have experience of living with diabetes;
- provide systemic integration of the healthcare system and people with diabetes specially trained for this purpose.

Within healthcare, people with diabetes are responsible both to themselves and to the healthcare system. They use the resources available to them in a responsible manner. They actively participate in seeking opportunities to use the available resources efficiently and effectively.

Responsibility in self-care means that people with diabetes act in compliance with the acquired knowledge and the skills they learned and are highly motivated to participate in the treatment and to fully take care of their selves to the best of their ability. They use medical devices needed for self-care responsibly and with care.

Guidelines until 2030:

- raise awareness among people with diabetes about their responsibility for their own health.

The acceptance of a healthy way of life can prevent or delay chronic complications caused by diabetes.

A healthy lifestyle is essential for diabetes treatment. Regular physical exercise improves metabolism and has a favourable effect on blood sugar, blood pressure and blood lipids and helps maintain a healthy weight. Healthy eating habits have a positive impact on all risk factors for chronic complications caused by diabetes. Continuity in the education on healthy lifestyle is essential; messages must be uniform and clear at all levels of education and at all locations where education is carried out, while the language should be unambiguous and understandable. The division of tasks in education within the team and among individual units of the healthcare system must be agreed and clear. Lifestyle education involves teams at the primary, secondary and tertiary levels of healthcare and other partners in the healthcare system and beyond it. With regard to the wide range of contents, expert consultation with specialists with specific knowledge is welcome. Lifestyle



education is most efficient if it's carried out in groups. However, some people with diabetes need individual consultation related to lifestyle, which should be accessible to them.

Guidelines until 2030:

- establish widespread access to optimum education;
- provide uniform education on healthy lifestyle ;
- establish clear clinical pathways and cooperation protocols for education on healthy lifestyle;
- establish a consultation system which involves professionals who have specialised knowledge.

Lifestyle changes are a great challenge for a person with diabetes and are therefore planned in small steps and together with the person with diabetes.

The most important lifestyle changes are those that require a well-planned and structured education, and in this regard, team-based planning is essential. The principal goals are set for the long term. At the same time, feasible, measurable and achievable goals tailored to the needs of people with diabetes and their problems are planned. These can be fulfilled in a relatively short period of time and can be regularly monitored. The goals are set in a way which enables people with diabetes to at least partly achieve them. Failures are part of changes and managing them improves success in establishing new habits. In order to maintain inner motivation, victories are essential.

Guidelines until 2030:

- train healthcare professionals and people with diabetes on the characteristics of the process to achieve permanent changes.

Education on specific lifestyle demands is always needed when a person is treated with insulin or medicines that increase insulin excretion from the pancreas.

When carbohydrate intake is uneven or metabolic processes are changed, these drugs can cause the blood sugar to drop too low, which is known as hypoglycaemia. A person with diabetes must be able to recognise this condition and act accordingly, as it can otherwise worsen the illness or even become dangerous. People with diabetes who receive medication must therefore be familiar with the importance of steady intake of carbohydrates from food or must be able to correctly assess the quantity and type of carbohydrates in a meal and adjust their insulin dose accordingly. The number of persons who are in need of such education is very high.

Guidelines until 2030:

- ensure that access to education on specific contents is available to all persons with diabetes at the beginning of treatment with insulin and medicines which increase insulin excretion from the pancreas;
- provide successful education on associated risk factors, such as overweight and obesity and high blood pressure and blood lipids.



## 9. DIABETES AND PREGNANCY: PROTECTING THE BABY AND THE MOTHER

Problems with diabetes and pregnancy occur when a woman with type 2 or type 1 diabetes becomes pregnant. However, diabetes can also develop during pregnancy and in this case usually disappears after giving birth, which is called gestational diabetes. Diabetes in pregnancy is becoming more common, because women are choosing to become pregnant later in life. At the same time women are also developing type 2 diabetes at a younger age. Obesity, which is an important factor for the development of diabetes in pregnancy, is also on the rise. 0.2 to 0.3% of women have diabetes before they become pregnant, while 8% of pregnant women develop diabetes during pregnancy (gestational diabetes); diabetes is thus one of the most frequent diseases that threaten the pregnant woman and her child and increase the risk for the development of complications in the child.

Women of reproductive age who have diabetes need special care. The outcome of pregnancy with diabetes in women with pregestational diabetes depends on the level of blood sugar at the time of conception and its management during pregnancy, perinatal and neonatal care. Congenital anomalies are still a reason for morbidity and mortality of their newborns and they are two to three times more likely to occur than in other newborns; however, good management of blood sugar before pregnancy and in early pregnancy can reduce the risk to the level that applies to the general population.

Women without known diabetes before pregnancy can develop gestational diabetes; it can only be detected in time with a screening test, as it does usually not cause problems that would indicate diabetes. Untreated and poorly treated gestational diabetes can cause foetal macrosomia and increases the risk of birth injuries, while overweight newborns have an increased risk of obesity and of type 2 diabetes later in life. A woman who has gestational diabetes is at a high risk for the development of type 2 diabetes..

A woman who has diabetes at reproductive age needs pregnancy planning counselling at least once a year and advice on contraception if necessary. She needs targeted education and care already before the planned pregnancy. Education involves the woman, a diabetologist, a gynaecologist, a perinatologist, an ophthalmologist and a registered nurse with special knowledge on the education of people with diabetes and other professionals, if required.

The care of women of reproductive age who have diabetes includes a medical examination, contraceptive counselling on appropriate contraception, the identification of possible contraindications to pregnancy and appropriate treatment of blood sugar; women are warned that treatment with certain medications is not allowed, and pharmacists in pharmacies can additionally draw the attention of women of reproductive age to this danger. Pre-pregnancy counselling and care should be organised in a centre with a multidisciplinary team that has all the necessary knowledge and experience with the treatment of diabetes and the care of pregnant women with diabetes. It is recommended that the team should provide care for at least 20 pregnant women with diabetes per year. In addition to blood sugar treatment, the adjustment of medication to certain other conditions that may harm the foetus and gynaecological management, of particular importance are regular ophthalmologic examination and monitoring of retinal changes.



Pre-natal care and delivery take place in a perinatology department where employees have experience with the management of pregnancy of women with diabetes. In the department there should be a properly equipped neo-natal unit with personnel qualified for intensive therapy of newborns.

Guidelines until 2030:

- update clinical guidelines for the care of women and pregnant women with diabetes;
- strengthen and set up clinical pathways for the treatment of women of reproductive age with diabetes;
- strengthen and set up clinical pathways for management during pregnancy and at childbirth in the healthcare team with appropriate healthcare professionals.

All pregnant women without known diabetes undergo screening tests for diabetes. Timely screening is part of regular care in the gynaecology clinic. Care during pregnancy is the same as for women who already had diabetes before pregnancy. After pregnancy, women are more likely to develop type 2 diabetes and their care should be adapted accordingly.

Because of the potential complications during the test, it is recommended that the test be carried out in a place with suitable conditions for the test to be carried out. If a screening test confirms diabetes during pregnancy, the pregnant woman must be referred to a diabetologist. Perinatal care must be provided in a gynaecological outpatient clinic with appropriate conditions and by gynaecologists who have the relevant knowledge to monitor high-risk pregnancy. Especially pregnant women who need insulin treatment are advised to be accompanied by a team of specialists at the secondary level.

After pregnancy and breastfeeding, women should undergo diagnostic tests to have their pre-existing type 2 diabetes confirmed or excluded and then be provided with seamless care in the former case.

Guidelines until 2030:

- provide clinical guidelines for diabetes during pregnancy;
- strengthen and provide access to screening tests for diabetes in pregnancy and a wide network for the performance of such tests;
- strengthen and set up clinical pathways for screening tests and further care of women with diabetes during pregnancy.

Pregnant women with diabetes are at a high risk of developing type 2 diabetes later in life. As the risk is probably similar to the risk of persons with impaired fasting glucose or impaired glucose tolerance, it is reasonable to take intensive action to promote a healthy lifestyle, especially healthy food, physical exercise and healthy weight and to diagnose type 2 diabetes at an early stage.

Life with diabetes during pregnancy is challenging, with a clear primary treatment goal and a relatively short time span. With regard to the result of diagnostic tests after pregnancy and breastfeeding, women need appropriate care and, above all, a renewed understanding of what such a condition in pregnancy means for the woman's further life and knowledge, understanding and skills in order to take action themselves. It is particularly important that women understand the differences in normal blood sugar during pregnancy and beyond.



The treatment is conducted by a family medicine team. Given the role of women in family life, women who have diabetes in pregnancy and have adequate health literacy can be advocates for healthy lifestyle in their families and with those close to them.

In the light of strong evidence that a life-course approach is important with regard to the development of obesity and its consequences, obesity among women of reproductive age and weight gain during pregnancy should be prevented where possible and breastfeeding should be encouraged. A family approach, nutrition after weaning, appropriate physical behaviour and the use of new methods of information dissemination can be of help to reduce the impact of childhood obesity.

Guidelines until 2030:

- set up clinical pathways and cooperation protocols for medical examinations and the care of women with diabetes during pregnancy and after childbirth, including timely laboratory re-diagnostics;
- strengthen and provide for health literacy among women in the process of empowerment for the successful management of risk factors for type 2 diabetes and strengthen health in the family and among relatives and friends.



## 10. MANAGEMENT OF DIABETES IN CHILDREN AND ADOLESCENTS IS AN INVESTMENT IN THE FUTURE SOCIETY

Diabetes in children, adolescents and young adults differs significantly from diabetes in adults. In Slovenia, in the age group under 25, approximately 95% of people with diabetes suffer from type 1 diabetes and only 5% have type 2 diabetes. Of particular importance is the fact that the prevalence of type 1 diabetes in this age group has been increasing by around 4% per year in recent decades, which means that every ten years the number of young people with type 1 diabetes has increased by 40%. Unfortunately, the prevalence of type 1 diabetes is rising fastest among pre-school children. Due to unhealthy lifestyle and obesity, the incidence of type 2 diabetes is also gradually increasing among the young, although Slovenia is one of the few countries where the trend of childhood and adolescence overweight has reversed and the percentage of overweight individuals is decreasing. The early onset of diabetes in children, adolescents and young adults means that this group is particularly at risk of early development of chronic complications caused by diabetes, which in addition to the known increased risk of cardiovascular diseases, retinal damage, kidney failure and nervous system damage, also comprise an increased risk of the cognitive dysfunction and permanent brain damage, which means that this group must be ensured the best possible care and treatment. In this context, it is of particular importance to enable young people with diabetes to be placed on an equal footing with their peers, and as well as the family, also the pre-school and school environments must be involved in the care.

Type 1 diabetes in children, adolescents and young adults is on the rise and therefore care is being adapted to the process of growing-up. Modern technology, which has advanced enormously in the past decade, makes treatment easier and supports a better quality of life.

According to the latest data, the annual incidence of type 1 diabetes in this age group is 16.1 per 100,000 inhabitants, which places Slovenia among other Central European countries. The disease is most common during puberty; in recent years, however, it has been increasing significantly in the pre-school age group. As the cause of pancreatic beta-cell collapse is mainly determined by autoimmune mechanisms, to date no way to prevent or cure the disease has been found. Precise insulin replacement with continuous and regular blood sugar determination remains the only treatment option, while the rapid development of technology has made treatment much easier.

An incurable chronic disease is a particularly difficult challenge for young persons, who are still developing their self-image and at the same time are trying to find their place among their peers and in society. In the treatment of diabetes, it is therefore essential to contribute to the independence of a young person with diabetes and their family through a clearly structured and well-defined education programme. Pre-school children, school children and adolescents need constant support in the family and in the kindergarten and school environment, so the education process should involve the widest possible range of representatives from each individual environment in which young persons live and develop.

A young person with type 1 diabetes is always treated by an entire team. The team consists of a paediatrician, a diabetologist, a registered nurse with specific knowledge, a



dietitian, a psychologist, a nurse, a social worker and other specialists if necessary. A young person with diabetes and their family participate equally in the team, and in the education process they co-decide about the most appropriate approach for the individual in diabetes management. Along with the development and growth of young persons, the strategy of disease management needs to be dynamically adapted to new circumstances, in particular to changes in the domestic and school environments. After completing their education, young people with diabetes should be prepared for the transition to diabetes care at diabetes outpatient clinics that provide care to adults and receive sufficient information to allow them to make their own decisions about the timing of the transition and choose their new diabetologist and the diabetologist's team.

The use of modern technology is key to successful diabetes management. Multicentre randomised controlled clinical research has shown that the use of insulin pumps and continuous glucose monitors, in particular in cases where they are interconnected, significantly improves the management of diabetes, while significantly reducing the prevalence of dangerously low blood sugar levels (hypoglycaemia). In addition, research data show that the use of this technology has significantly improved the quality of life of young people with diabetes and their families. It is therefore important to ensure that all young people with diabetes have access to high-quality technology.

Due to the sharp increase in the type 1 diabetes incidence rate in young people and the increasing complexity of managing this disease with modern technology, Slovenia must ensure continued treatment of young people with diabetes in specialised centres with a sufficient number of teams in line with the published global guidelines to provide permanent and high-quality cooperation with young persons suffering from diabetes and their families, the pre-school and school environment, and the wider community. This also requires constant monitoring of quality of care using internationally comparable indicators and scientific research and teaching activities, which are the precondition for the development of the profession and the maintenance of a high quality level.

#### Guidelines until 2030:

- ensure continuity of treatment of young persons with type 1 diabetes in compliance with internationally accepted clinical guidelines and age-adjusted clinical pathways;
- update the Slovenian clinical guidelines with an emphasis on young people with diabetes;
- provide access to modern quality technology for all young persons with type 1 diabetes;
- ensure a sufficient number of teams in specialised centres for the management of diabetes in young persons;
- provide professional education and training for pre-school teachers and teachers who come into contact with a child or adolescent with diabetes in their work.

Type 2 diabetes in children, adolescents and young adults needs to be detected as soon as possible. Through structured measures, the recurrence of the disease can be delayed or even prevented.

Due to the rise in obesity rates, the decline in physical activity and unhealthy lifestyle based on excessive intake of cheap carbohydrate food, the prevalence of type 2 diabetes





has also started to increase among young persons. A large cohort study in Great Britain has shown that obese children are at a fourfold higher risk of developing type 2 diabetes after the age of 25 in comparison to children with a normal body mass index. Without action, many complications develop. Obese children are at an increased risk of developing diabetes, at a threefold risk of high blood pressure, and at a fivefold risk of cardiovascular diseases and even cancer. It is not only obesity and the body mass index that are important, but also the abdominal visceral fat, which can sometimes develop in children with an unhealthy lifestyle, although they might not be overweight. Health problems often start already before adulthood.

Extensive comparative studies in countries with a high prevalence of type 2 diabetes among young people have shown that young people with type 2 diabetes significantly differ from young people with type 1 diabetes. Type 2 diabetes is more common in socially weaker families where parents have a lower level of education and lower income and live in poorer living environments. Therefore type 2 diabetes in young people can be classified as a social disease of modern society. Apart from unhealthy lifestyle and social environment, also genetic predispositions play an important role in the development of type 2 diabetes.

Type 2 diabetes in young people is characterised by a gradual progression towards the disease, which starts with a period of increased insulin resistance in body tissues and passes to a period of impaired glucose tolerance, from which type 2 diabetes can develop. It is important to know that in any of these phases lifestyle changes can slow or even prevent type 2 diabetes in young people. If lifestyle changes do not help, type 2 diabetes in young people quickly leads to the development of complications, in particular to retinal damage, kidney failure and nervous system damage. In Japan, as many as 35% of young people were found to have chronic changes in the retina when diagnosed with type 2 diabetes, which means that the disease was detected too late. Type 2 diabetes in young people is often accompanied by high blood pressure, high cholesterol levels and other conditions, so all these should be treated as soon as they are identified.

In Slovenia, all young people who meet the criteria for obesity (the body mass index (BMI) is greater than 2 standard deviations above the median for the age or is above the 93rd percentile curve) are selectively screened with an age-adapted oral tolerance test for glucose. This allows early detection of all stages of type 2 diabetes.

The care and treatment of type 2 diabetes in young persons significantly differs from the management of type 1 diabetes. Lifestyle change is always the first treatment option, which involves a psychologist using behavioural and motivation approaches at the level of the entire family; a key role is also played by a dietitian. Through a successful lifestyle change with weight reduction to the normal weight range, the onset of type 2 diabetes might be avoided. Unfortunately, the specific socio-economic environment may make this initial approach likely to prove unsuccessful, in which case medication needs to be introduced in the treatment, which starts with oral medication and later, when its effect wears off, continues with insulin.

Guidelines until 2030:

- provide regular selective screening of young people at risk of developing type 2 diabetes;



- maintain team-based treatment of young persons with diabetes in compliance with internationally adopted guidelines and age-appropriate clinical pathways;
- update the Slovenian clinical guidelines;
- ensure a sufficient number of teams in a specialised centre for the management of people with diabetes;
- implement health promotion measures for young persons;
- provide availability of blood sugar monitoring devices for home use;
- provide modern medicines for the treatment of type 2 diabetes for all young persons at the early stage of developing the disease.

Prevention of obesity in children, adolescents and young adults requires participation of the entire society.

The rise in obesity among young people is one of the greatest threats to modern societies, including in terms of the economic and general social development, since longitudinal tracking studies have shown that obesity in childhood and adolescence, independent of subsequent weight gain, causes the development of cardiovascular diseases as early as the beginning of the third decade of life and damage to the skeleton; it also disrupts the development of young persons and significantly affects their self-image. It is perhaps the psychological consequences of obesity that significantly disrupt the person's development of personality and self-image and do the most damage in the long term. Along with the increase in obesity prevalence, young persons are also affected by an increased incidence of feeding and eating disorders, which must be identified and treated appropriately.

Obesity in children and adolescents is associated with a number of complications later in life, including type 2 diabetes. Among children with extreme weight problems, early forms of carbohydrate metabolism disorders have been found in as many as two-thirds of children and almost 50% of adolescents. Diabetes and obesity can be prevented through an appropriate approach from early childhood onwards.

Slovenia has a well-organised network of primary paediatricians who, through regular systematic examinations and general monitoring of young people, detect overweight and obesity at an early stage. In 2019, the project "Family Treatment of Obesity in Children and Adolescents" started to be implemented.

Outside and partly also within the healthcare system, there are numerous dispersed and unrelated activities aimed at improving the health of children and adolescents. The new concept of health promotion centres as upgraded health education centres is focused on the systemic integration of all activities promoting the health of children and adolescents and their families. The community approach to health (which means that the community identifies, provides and coordinates activities aimed at maintaining and promoting health and reducing inequalities in health), which is co-created in the community by the healthcare centre, the municipality and other actors in the local community, including the education system, is also implemented with a special focus on the youngest population. Such an approach allows healthcare professionals working in primary level healthcare and in public healthcare to engage with other actors in the community as the initiators of health-related activities and co-create and support other actors, while at the same time integrating the recipients of services, i.e. children and adolescents and their families, in the development of approaches, measures and activities. In this way, children and



adolescents with overweight-risk behaviour can be cared for together with their families in the environment in which they live, go to school and work.

Diabetes prevention programmes and education programmes and initiatives are aimed at tackling inequalities in health for people at high risk and for vulnerable groups. Programmes refer to specific groups at various locations in the country.

However, there is still a need for more extensive research work leading to good quality data at the national level on the basis of which additional analyses can be conducted and guidelines adopted for the further development of measures in this area.

A successful programme for preventing overweight and obesity in young children goes beyond even the best organised healthcare system. It requires the involvement of the school system at all levels, participation of physical activity experts and media experts, and, last but not least, coordinated cooperation of the society as a whole, which must also adopt the relevant legal bases and implementing regulations for integrated action. In this area, Slovenia has been implementing the ReNPPTDZ 2015–2025, which covers all these areas through systematic measures, since 2015.

Guidelines until 2030:

- ensure a sufficient number of appropriately qualified teams to deal with obesity at the primary paediatric level in accordance with international guidelines;
- establish regular research activities on lifestyle, eating and physical exercise habits and the associated morbidity in young people;
- develop age-appropriate programmes to increase physical activity and sport among the young, both in the classroom and beyond;
- ensure the implementation of measures to prevent overweight and obesity in young people;
- adopt and enforce a ban on advertising unsuitable and unhealthy food and drinks for young people;
- adopt and enforce a ban on the offer and sale of unsuitable and unhealthy food and drinks in all public establishments where young people are present (kindergartens, schools, faculties, healthcare institutions, sports facilities, etc.);
- support the development and strengthening of activities of health promotion centres, both at the national level and in local environments;
- support the measures and activities of the ReNPPTDZ 2015–2025 focused on children, adolescents and families.

## **11. QUALITY MONITORING IS THE BASIS FOR CONTINUOUS IMPROVEMENT OF CARE**

Quality of care is monitored at the level of each individual with diabetes, at the level of the individual unit of the healthcare system involved in the care, and at the level of each area, i.e. at the regional and national levels. Quality monitoring at the level of each individual with diabetes is of help in the assessment of longer-term care and in the preparation of the annual report and the planning of care. At the level of each individual unit of the healthcare system, quality monitoring enables the evaluation of effectiveness of care and the introduced substantive and organisational changes. At the regional level, it enables the comparison of the outcomes of care between individual units and provides feedback to



healthcare providers, which serves as the basis for improvement planning. At the national level, quality monitoring can be used to plan systemic changes where necessary and to assess their effectiveness. Data for some diabetes care-related quality indicators also allow for international comparability. Improvement of care is a complex process and should therefore be monitored using a plan-do-study-act plan.

Monitoring the quality of care for people with diabetes is integrated in the healthcare system.

Quality monitoring is based on the standardised electronic recording of health data using information and communication technology. It includes all persons with diabetes and all units within the healthcare system that provide healthcare to people with diabetes. Data capture must be part of the integrated information system, the documentation and feedback system must be uniform, while data must be available on time and at various levels of healthcare and in various units. A particular challenge is the integration of data from social care facilities and the occupational and sports medicine system. The system must enable the identification of persons who have dropped out from clinical pathways. It should enable the monitoring of care at each clinical pathway level. Another of the applications of the electronic medical records could be a register or other collection of healthcare data of people with diabetes.

Quality and safety management in healthcare in Slovenia is not well regulated; quality and safety management providers at the national level and at the level of individual healthcare organisations are not clearly defined, the existing resources are insufficient, monitoring and evaluation procedures are not adequately documented and disseminated, while the culture of quality and safety has not yet been put in place. The Resolution on the National Health Care Plan 2016–2025 "Together for a Healthy Society" (hereinafter: the ReNPZV 2016–2025) foresees, among other things, amendments to legislation and the updating of indicators and the quality and safety monitoring system.

Guidelines until 2030:

- integrate the monitoring of diabetes care-related quality into all activities to be carried out on the basis of the planned ReNPZV 2016–2025 activities.

Uniform quality criteria must be provided.

The selected quality indicators should reflect the achievement of treatment objectives for blood sugar, pressure and lipids and the presence of chronic complications caused by diabetes. Quality criteria should also include an appropriate number of structured indicators (for example the number of appropriately trained professionals) and process indicators (indicators of accessibility, safety and efficiency), result indicators (intermediate results, such as the HbA1c percentage, or the final results, for example the presence of diabetic retinopathy), and system balance indicators (for example equitable access to all education programmes). Structural and process indicators for diabetes can be derived from the standards of care organisation, result indicators and clinical guidelines.

*Explanation: Standards for the organisation of diabetes-related care*

*Standard 1: Clinical information recording*

*Key clinical information on all persons with diabetes is recorded in accordance with the legislation and in a way such that the recording supports quality care for*



*individual persons, provides care planning and monitoring at the level of healthcare providers, and includes external auditing.*

and

*Standard 2. Coordinated treatment across levels, between medicine specialties and in the team*

*Various healthcare professionals have access to individualised care plans coordinated with the person suffering from diabetes. The common goals are clearly defined and accessible to all team members. The availability of care plans enables team work, continuous care and coordination between professionals. In the structured care programme, the following has been clearly defined:*

- the content and processes of care based on clinical guidelines and protocols;*
- the division of care between the levels of healthcare activities, healthcare professions and professional groups, so as to identify which healthcare professionals are responsible for the implementation of individual aspects of care;*
- criteria for referral; and*
- the means of information exchange.*

*Standard 3. A person with diabetes is actively involved in care-related decision-making*

*All persons with diabetes have equal access to information and multidisciplinary structured education programmes adapted to the needs, wishes and characteristics of each individual.*

*Standard 4: Multifactorial treatment*

*All persons with diabetes have their HbA1c values measured and documented where necessary for the management and monitoring of treatment.*

*All persons with diabetes have their blood pressure measured and documented where necessary for the management and monitoring of treatment.*

*All persons with diabetes have their blood lipids measured and documented where necessary for the management and monitoring of treatment.*

*Standard 5: Cardiovascular diseases*

*All persons with associated problems and symptoms of cardiovascular diseases are referred to a specialist for further care and treatment on the basis of a locally agreed clinical pathway in accordance with clinical guidelines and protocols.*

*Standard 6: Eyes*

*All persons with diabetes have access to regular screening tests for diabetic retinopathy on the basis of a locally agreed clinical pathway and are referred to an ophthalmologist for further care and treatment in accordance with clinical guidelines and protocols.*

*Standard 7: Foot*

*All persons with diabetes have access to regular screening for diabetic foot on the basis of a locally agreed clinical pathway which provides interdisciplinary care and are referred to the relevant specialists for further care and treatment in accordance with clinical guidelines and protocols.*

*Standard 8: Kidneys*

*All persons with diabetes have access to regular screening tests for diabetic kidney disease on the basis of a locally agreed clinical pathway and are referred to a specialist for further care and treatment in accordance with clinical guidelines and protocols.*



*Standard 9: Acute conditions*

*All persons with diabetes and acute diabetes-related conditions (severe hypoglycaemia, diabetic ketoacidosis and diabetic nonketotic hyperosmolar syndrome) or other acute conditions have rapid access to care and treatment on the basis of a locally agreed clinical pathway in accordance with clinical guidelines and protocols. At the end of treatment of the acute condition, they are referred to regular diabetes management on the basis of a locally agreed clinical pathway with a focus on preventing the recurrence of the acute condition.*

*Standard 10. Annual diabetes care report, planned and extraordinary medical examinations*

*All persons with diabetes have an annual diabetes care report drawn up, including a treatment plan, and have access to planned and extraordinary examinations with regard to the condition of their disease. Examinations are intended to monitor the success of treatment, to take action if required and to support healthy lifestyle.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

*Explanatory note: Quality criteria which are monitored in family medicine clinics and are specific for diabetes:*

- establishment of a register – local health database for all persons with diabetes;*
- percentage of persons with diabetes who have had their HbA1 measured at least once a year;*
- percentage of people with diabetes who have had their feet examined at least once a year;*
- percentage of people with diabetes with a measured glycated haemoglobin value of 7% or less.*

*Source: Faculty of Medicine of Ljubljana, Chair of Family Medicine.*

Guidelines until 2030:

- develop uniform quality criteria and connect them to mechanisms for continuous improvement of care.*

The legal bases must support the monitoring of quality of care.

The system must provide a reliable identification of persons, personal data protection and reliable protection against misuse.

Guidelines until 2030:

- support the establishment of a relevant legal basis in accordance with the ReNPZV 2016–2025 activities.*



## 12. THE ORGANISATION OF CARE FOR PEOPLE WITH DIABETES INVOLVES ALL LEVELS OF HEALTHCARE AND EXTENDS BEYOND THE HEALTHCARE SYSTEM

The Ministry of Health is responsible for developing, implementing and monitoring health system strategies, including diabetes management. The Ministry of Health will therefore appoint a working body to monitor and promote activities for the implementation of the 2020–2030 NDPCP at the national level. The organisation of care still varies between the Slovenian regions. In order to implement the envisaged activities at regional and local levels, it will be necessary to set up regional working groups which will act as coordinating bodies with defined responsibilities and competences (as a structural part of the health system) or to provide processes to coordinate and integrate all activities for diabetes management. The decision on this will be the result of the arrangement and agreement of all partners at the regional level, in particular hospitals, healthcare centres, the regional units of the National Institute of Public Health and local associations of people with diabetes and will be made reasonably with regard to the development of a common approach to health where responsibility is shared between healthcare centres and municipalities. Such a group and process should be represented by family medicine doctors, diabetologists, registered nurses at the primary and secondary levels of healthcare, pharmacy and clinical pharmacists, and associations of people with diabetes and include various other profiles that are actively involved in the organisation of care, such as home care services, occupational and sports medicine clinics, school medicine services, gynaecologists, homes for the elderly and other social care institutions, kindergartens, schools, faculties, and the media. As the population is ageing, there is an increasing need for interconnection with other sectors, especially social care, in order to provide long-term care.

The care of people with diabetes is a task to be fulfilled within the healthcare system. The division of labour and the interconnection and coordination between all levels of the healthcare system should be negotiated and needs to be clearly defined. The financing arrangements should promote efficient and cost-effective care at all levels of healthcare.

Coordination of care between all levels of the healthcare system is important. The first conditions for this are a well-defined division of labour and coordination and connection with mechanisms which are already in place and determine the tasks, competences and responsibilities for the implementation of what has been agreed. The network of primary, secondary and tertiary healthcare services should provide quality, safe and equitable access to care for all persons with diabetes. Resources should be used responsibly, rationally and efficiently and the use should be based on the integration of activities.

Guidelines until 2030:

- strengthen medical teams for the care of people with diabetes and provide their availability at all levels of healthcare;
- define the contents and scope of work of healthcare teams at individual levels of healthcare;
- define communication pathways between individual organisational structures and individual functional interdisciplinary healthcare teams at the primary and secondary levels, define the connection with the tertiary level of healthcare, and record what has been agreed in clinical pathways and cooperation protocols;



- define a financing method at the primary, secondary and tertiary levels of healthcare which will enable and promote quality, rational and effective care.

The care of people with diabetes is provided by healthcare teams that consist of a doctor, a registered nurse with special skills and other professionals, regardless of the level of care. People with diabetes are equal members of the team and co-create a comprehensive care plan.

All family doctors, primary level registered nurses and other nurses should be integrated in healthcare teams at the primary level. The purpose is to create functional teams, i.e. teams whose members come together to complement each other's knowledge and skills and should by no means lead to the fragmentation of primary healthcare activities. When providing care for a person with diabetes, the family doctor still has a holistic picture of the individual, including other diseases and conditions they might have. Healthcare teams at the secondary level (diabetes teams) should be strengthened and extended to also include other professionals, such as nutrition counsellors (dietitians), diabetes foot specialists and psychologists. People with diabetes must be systematically and organisationally integrated as equal members of the healthcare team.

#### Guidelines until 2030:

- upgrade and strengthen healthcare teams at the primary level of healthcare;
- identify the needs and conditions for integrated and quality care at the primary healthcare level for people with diabetes who are not yet covered by the current organisation of healthcare;
- provide resources for integrated and quality care of people with diabetes at the primary healthcare level;
- provide continuing training of family medicine doctors and nurses at the primary healthcare level;
- establish functional links between all members of the healthcare team at the primary level;
- establish communication and consultation pathways between family medicine teams and healthcare teams at the secondary level as part of clinical pathways and cooperation protocols;
- upgrade and strengthen communication pathways between family medicine doctors and pharmacy pharmacists or consultant pharmacists and include them in cooperation protocols;
- strengthen the functionality of healthcare teams at the secondary level and extend them with other professionals;
- promote the inclusion of people with diabetes in healthcare teams at all healthcare levels.

The organisation of integrated care should cover all elements of integrated care.

The organisation of integrated care includes effective treatment of high blood sugar, blood pressure and cholesterol levels and early detection of complications caused by diabetes and provides for immediate and intensive treatment of complications and enables the development of all rehabilitation options. The organisation of care connects part of the healthcare system that provides care for chronic disease patients and part of the





healthcare system responsible for acute conditions. The organisation of care allows for the monitoring of the effectiveness of treatment and ensures quality care.

*Explanation: Standards for the organisation of diabetes-related care (adapted from the Clinical Guidelines for Clinical Treatment of Type 2 Diabetes, 2016)*

*Standard 1. Clinical information recording*

*Key clinical information on all persons with diabetes are recorded in accordance with the legislation and in such a way that the recording supports quality care for individual persons with diabetes, provides care planning and monitoring at the level of healthcare providers, and includes external auditing.*

*Standard 2. Coordinated treatment across levels, between professions and in the team*

*Different healthcare professionals have access to individualised care plans coordinated with the person suffering from diabetes. The common goals are clearly defined accessible to all team members.*

*Accessibility of care plans enables teamwork, continuity of care and consistency between professionals.*

*The structured care programme clearly defines the following:*

- the content of care and the processes of care based on clinical guidelines and protocols;*
- the division of care and the interconnection between levels of healthcare and between disciplines and professional groups by defining healthcare professionals who are responsible for providing specific aspects of care;*
- criteria for referral; and*
- means of exchanging information.*

*Standard 3. A person with diabetes is actively involved in care-related decision-making.*

*All persons with diabetes have equal access to information and multidisciplinary and structured education programmes that are tailored to the needs, wishes and characteristics of each individual.*

*Standard 4: Multifactorial treatment*

*All persons with diabetes have their HbA1c values measured and documented where necessary for the management and monitoring of treatment.*

*All persons with diabetes have their blood pressure measured and documented where necessary for the management and monitoring of treatment.*

*All persons with diabetes have their blood lipids measured and documented where necessary for the management and monitoring of treatment.*

*Standard 5: Cardiovascular diseases*

*All persons who have associated problems, symptoms or signs related to cardiovascular disease are referred to a specialist for further care and treatment on the basis of a locally agreed clinical pathway in accordance with clinical guidelines and protocols.*

*Standard 6: Eyes*

*All persons with diabetes have access to regular screening for diabetic retinopathy on the basis of a locally agreed clinical pathway and are appropriately referred to an ophthalmologist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Standard 7: Foot*



*All persons with diabetes have access to regular screening for diabetic foot on the basis of a locally agreed clinical pathway which provides interdisciplinary care and are referred to an appropriate specialist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Standard 8: Kidneys*

*All persons with diabetes have access to regular screening for diabetic kidney disease on the basis of a locally agreed clinical pathway and are referred to an appropriate specialist for further care and treatment in accordance with clinical guidelines and cooperation protocols.*

*Standard 9: Acute conditions*

*All persons with diabetes and diabetes-related acute conditions (severe hypoglycaemia, diabetic ketoacidosis and diabetic nonketotic hyperosmolar syndrome) or other acute conditions have immediate access to care and treatment through locally agreed clinical pathways in accordance with the clinical guidelines and protocols of cooperation. After the treatment of acute conditions is completed, they are referred to regular diabetes management in accordance with a locally agreed clinical pathway focused on the prevention of recurrence of the acute condition.*

*Standard 10. Annual diabetes care report, planned and extraordinary medical examinations*

*All persons with diabetes have an annual diabetes care report drawn up which includes a treatment plan and have access to planned and extraordinary medical examinations depending on their disease status. The purpose of these examinations is to monitor treatment success, to take action where necessary and to support a healthy lifestyle.*

*Source: <http://endodiab.si/priporocila/smernice-za-vodenje-sladkorne-bolezni/>.*

Guidelines until 2030:

- establish organisational forms that ensure coordination and integration of all elements of integrated care.

The care of people with diabetes is very demanding in terms of financial, human and other resources. Care for efficient use of resources is essential for the sustainability of the public healthcare system.

The search for more effective and innovative organisational forms and other measures to improve the efficiency of care should be one of the fundamental guiding principles for the development and change of the organisation of care.

Guidelines until 2030:

- enforce the principle of efficiency as an important principle in changing the existing organisation of care for people with diabetes.

The person with diabetes may be in an unequal position because of their disease. The healthcare system should therefore link up with other key stakeholders in society to ensure greater social security of people with diabetes.

People with diabetes are equal to persons without diabetes. Diabetes should therefore not be in itself a limiting factor in education, career choices, employment, transport and other circumstances.



#### Guidelines until 2030:

- set up effective cooperation with occupational medicine and sports medicine;
- identify the key stakeholders and processes in society to ensure equality of people with diabetes and establish cooperation;
- prevent and reduce stigma and discrimination of people with diabetes.

There are local differences in the organisation of care for people with diabetes in Slovenia.

Local differences in the organisation of care are usually historically determined and in many parts of the country care is very well organised. In order to implement changes in such organisation, it is important to build on the existing situation and introduce the changes carefully, paying special attention to those elements that ensure quality care. The project of reference family medicine clinics intended to strengthen family medicine activities brought about structural changes in the organisation of care in the family medicine team. Proactivity of family medicine in the care for the population's health is supported by the process of establishing health promotion centres. These changes bring us closer to a more uniform organisation of diabetes care, but there are still differences between regions. The core elements of the organisation of care should be determined by consensus and at the national level; when introduced in the local environment, sensitivity to local circumstances should be maintained, especially when they support the quality of care.

#### Guidelines until 2030:

- introduce efficient, accessible and safe care which is as uniform as possible and at the same time adapted to local circumstances.

The healthcare system must ensure accessibility, flow of patients through the system and care based on clinical guidelines.

Clinical pathways based on clinical guidelines, with clear algorithms and criteria for decision-making, and established cooperation protocols ensure equitable access to care and maintain the flow of patients through the system. Health information about a person with diabetes must be accessible in a timely manner to healthcare professionals at all levels of healthcare, while comprehensive diabetes care also requires good communication between healthcare professionals at all levels of the healthcare system and the establishment of consultation pathways. Care coordinators contribute to ensuring equitable care, while in more complex cases case coordinators help people with diabetes and their families and friends coordinate care and various needs.

#### Guidelines until 2030:

- prepare clinical guidelines in areas where they do not yet exist;
- develop and establish clinical pathways and cooperation protocols that provide for the flow of patients through the system while ensuring professionalism;
- upgrade and strengthen communication pathways for the transfer of health data on people with diabetes;
- upgrade communication and consultation pathways connecting healthcare professionals;



- establish a system of communication pathways between healthcare professionals and people with diabetes using new technology tools such as telemedicine;
- establish or strengthen the activities of care coordinators and case coordinators.

Care for people with diabetes is complex and lifelong and intended for a large number of individuals and therefore requires integration with partners both within and outside the healthcare system.

Partners that can significantly contribute to integrated care include, in particular, occupational and sports medicine organisations and associations of people with diabetes and other non-governmental organisations. In the context of providing long-term care, models of community-based forms of long-term care and personal assistance need to be established.

Guidelines until 2030:

- identify partners who can participate in the care of people with diabetes and who are not part of the healthcare system;
- establish links between the healthcare system and partners who work outside the healthcare system;
- support activities and measures foreseen in the ReNPZV 2016–2025 for long-term care until 2025 and also actively cooperate with other partners in this field after 2025.

In order to coordinate care at regional and local levels, structures and processes need to be established that include not only healthcare professionals but also representatives of people with diabetes.

A system of monitoring and coordinating care in individual areas, regions and local communities needs to be developed.

Guidelines until 2030:

- establish a structure or provide processes for coordination and integration of care for people with diabetes in individual areas.



### 13. DIABETES FROM BIRTH TO OLD AGE

A person with diabetes is included in different environments throughout their life. Children with diabetes attend kindergarten and school, and at that time their families are importantly involved in care. Children in this period may also be affected by diabetes if one of their parents or others who are close to them suffer from this disease. The increasing prevalence of type 2 diabetes among the working population also calls for the adaptation of workplaces to persons suffering from diabetes and adaptations of workplaces for healthy people and the strengthening of their health to prevent diabetes and other chronic diseases. The number of women of reproductive age suffering from diabetes and women who develop diabetes during pregnancy is also increasing. At that time diabetes has an impact on the woman and her family and also on her child. The quality of an individual's life in their domestic environment – in the family, within the wider social network and in the local community – has a key impact on their lives, which is an additional challenge of providing diabetes prevention and care to maximise the quality of life. The third age is often accompanied by the individual's re-evaluation of values and choices, but it also represents an increased risk of developing several chronic conditions and diseases at the same time. Diabetes, whether it is a long-time companion or a newly developed chronic disease, is therefore often just one condition, and the quality of life is increasingly dependent on the functional capacity of the individual and their social network.

The final objective of all measures and activities being planned and implemented is to ensure a quality life for people with diabetes. Diabetes accompanies them at different stages and in different circumstances of their lives, and as life changes, so does the attitude towards diabetes. Only measures and activities that are sensitively defined, taking into consideration special characteristics at various stages of life, can lead to a real improvement in quality of life.

Guidelines until 2030:

- develop and strengthen measures and activities related to diabetes prevention and care that are specifically targeted at various stages of life;
- strengthen capacities for work with vulnerable groups and partnerships with local communities, non-governmental organisations, and educational and social welfare organisations.

The results indicate that the health of the active working population, in particular men, is not good. Healthy working people are a pillar of Slovenia's economic development. The promotion of health, early diagnostics and quality care adapted to the needs and abilities of people, including health promotion at the workplace, require different approaches.

We live in an era of increased workload, lack of leisure time, stress, presenteeism (non-utilisation of sick-leave in the event of illness), high level of sick leave, and changed and more restrictive working conditions. Such circumstances call for different approaches in promoting health and safety at work through appropriate measures in the field of occupational health and safety at work.

Legislation already obliges employers to plan and implement workplace health promotion. In Slovenia, workplace health promotion programmes are complemented by measures to ensure the safety and health of workers and of other persons present in the work process,



including the prevention, elimination and management of occupational risks and injuries, the provision of information and training of workers, and the provision of the required organisation and material means, as prescribed by law. Occupational medicine specialists play an important role in this area. The social partners can also make a significant contribution.

Activities in people's working environments cannot be only provided within the framework of public services, because they must reach every individual in their local environment. Non-governmental and non-profit organisations can significantly contribute to the accessibility of quality programmes for raising awareness on healthy lifestyle and provide conditions for healthy choices. It is crucial to monitor such programmes in terms of quality and efficiency and to provide professional assistance to providers in their planning. The guidelines for prevention programmes in the working environment are an important contribution to the development of quality measures in the workplace.

Guidelines until 2030:

- support the development of measures and activities foreseen in the ReNPZV 2016–2025 to maintain the health of the working population from the aspect of diabetes, in particular capacity-building and strengthening of partnerships with labour organisations.



#### 14. RESEARCH ON DIABETES PREVENTION AND CARE EXTENDS TO MANY AREAS, WHICH REQUIRES CONSTANT COOPERATION

Research activities in the field of diabetes prevention and care include research on diabetes prevention and care for people with diabetes. They are carried out at all healthcare levels and beyond the healthcare system and can include research in the fields of public health, health economics, quality, organisation of care, physiology, medicines and medical devices, and behaviour and satisfaction of people with diabetes.

The complexity of measures related to diabetes prevention and care requires interdisciplinary research, i.e. continuous interconnection and cooperation between research groups and institutions from both natural and social sciences.

Guidelines until 2030:

- ensure and promote transparent integration of various partners in the field of diabetes prevention and care;
- support coordination of basic research which deals with disease processes at the level of disease mechanisms;
- expand the existing research activity in the field of diabetes through research in the field of epidemiology, on the effectiveness of measures to prevent type 2 diabetes at the population and individual levels and to prevent type 2 diabetes in persons at high risk of diabetes, and in the field of science on improvements in the organisation of care;
- conduct regular socio-epidemiological research of behavioural and environmental risk factors associated with diabetes;
- ensure the integration and analysis of data, including community health diagnosis, with the purpose of identifying/defining the needs of the population and groups at higher risk and monitor progress in attaining the objectives;
- mapping health inequalities related to diabetes;
- provide research activity in fields where it has not yet been developed, such as efficiency in education, evaluation of organisational measures, health economics and similar.

The provision of resources for research is often inadequate, although the requirements for research excellence are high.

Research activities are often carried out in ordinary clinical wards, healthcare professionals have no pre-allocated time available for such work, there is no regular additional training on good clinical practice in research, and financing of clinical research work is not transparent and not regulated. Research is often based on the inventiveness of the research team.

Academic research, i.e. research independent of pharmaceutical companies, is financed from the state budget, through international EU projects and through other connections with research institutions abroad; it can be supported by academic associations or through projects financed by public institutions themselves. In Slovenia, the possibility of financing from charitable donations has not yet been established to a sufficient extent.

Guidelines until 2030:



- integrate research activities in regular clinical work and provide conditions for research, including stimulus funding;
- establish support in providing funding to enable ongoing research work.

People with diabetes are important partners in research activities.

Raising awareness among people with diabetes on the importance of research activities at various levels and from different aspects of research is essential.

Guidelines until 2030:

- strengthen the informing of people with diabetes on the importance of research.

Research findings must be transferred into practice as soon as possible, in particular when they lead to better prevention and identification of diabetes and to better and more effective management of diabetes.

Guidelines until 2030:

- establish research that enables the development of knowledge to be rapidly transferred into day-to-day practice.





## **15. EDUCATION AND TRAINING OF HEALTHCARE PROFESSIONALS MAKES DIABETES PREVENTION AND CARE MORE EFFECTIVE, WHILE THE SUPPORT PROVIDED TO PEOPLE WITH DIABETES BY OTHER PEOPLE WITH DIABETES APPROPRIATELY TRAINED FOR THESE PURPOSES (PEER SUPPORT) MAKES LIFE EASIER**

Diabetes care involves the participation of doctors specialised in various fields, nurses, pharmacy pharmacists, and, depending on the complexity of treatment, physiotherapists, psychologists, dietitians, kinesiologists and other non-medically trained professionals who can also contribute to better care. Individuals with diabetes (and their families or others affected by this disease) can make life with diabetes easier if they are properly trained and if their activity is appropriately organised.

All professionals working in healthcare and involved in diabetes care must obtain specific knowledge on diabetes, which needs to be continuously upgraded.

With regard to the development of approaches to diabetes, the tasks and roles of individual healthcare professionals will change and expand to other areas (for example team work, the preparation and consideration of clinical pathways and cooperation protocols, the development of care plans with the active participation of people with diabetes, as care coordinators, as case coordinators, training to promote health literacy, and support in the process of empowerment), which requires the review and adaptation of the curricula of the existing graduate, post-graduate and functional education and training, the establishment of innovative forms of training to acquire relevant competences (such as mentoring), and the provision of more flexible continuing postgraduate education in the light of anticipated and changing tasks and roles in healthcare. Professionals without a medical background who are integrated in healthcare work also need additional training (for example to prevent the pathologisation of common human conditions).

Guidelines until 2030:

- upgrade the existing graduate and post-graduate education of doctors and other healthcare workers in all areas of medicine that are of key importance for the prevention and care of diabetes, with contents from the entire field of diabetes prevention and care, and other skills necessary for teamwork, the cooperation and communication with professionals outside the team, the promotion of health literacy, and support in the process of empowerment for successful diabetes self-management;
- establish more modern forms of ongoing post-graduate training, such as by setting up mentoring networks;
- include specialisation in diabetology in post-graduate training of doctor internists;
- establish and strengthen post-graduate training for registered nurses to deliver education in various work environments (such as family medicine, health promotion centres, community nursing services and diabetes teams) and strengthen the mentoring network and the role of the mentor in ongoing education;
- upgrade training of community nurses on diabetes;
- provide education on diabetes for staff in social care institutions;
- upgrade graduate, post-graduate and functional education for dietitians (nutrition councillors) through education and training on contents that are important for



diabetes care and at the same time strengthen functional education of all healthcare professionals on nutrition;

- establish new and strengthen the existing education programmes for professionals who participate in foot care of people with diabetes and strengthen functional education of all healthcare professionals and other profiles who participate in diabetes foot care;
- strengthen education and training on diabetes in graduate, post-graduate and functional education of other professionals (clinical psychologists, social workers, physiotherapists and occupational therapists).

Individuals with diabetes (and their families, friends and others who are affected by diabetes) can play a special role in making the life of people with diabetes easier if they are properly trained and if their activities are properly organised. Other people without a medical background, such as the relatives, pre-school teachers and teachers of people with diabetes, can also improve the lives of people with diabetes, especially if they are trained to do so.

People who have their own experience with this disease, either people with diabetes themselves or people close to them, can be of great support (referred to as peer support in the 2010–2020 NDPCP; the term, however, was not the optimum choice and is therefore adjusted in this strategic document). People with similar experience can share knowledge and experience, including experience that many healthcare professionals do not have. Support refers to practical, social and emotional aspects. In the 2010–2020 period, basic materials and legal bases for the training of these individuals and a proposal for the organisation of training and the operation and monitoring of their activities were prepared.

A specially trained person with diabetes can influence the behaviour of an individual by acting in various circumstances: they can help create a (local) environment that is conducive to physical exercise and healthy eating; they are integrated in existing programmes in healthcare (for example health promotion centres), in the community and at the workplace; and they can work in a group in their neighbourhood or provide support to a family or another person with diabetes. They can also help create a more effective health system at the national level, of course from the aspect of a person with diabetes.

Their role is only to provide support, not to give instructions or opinions that are the responsibility of healthcare professionals. A suitably qualified individual in such a role therefore understands that they are not a psychologist, psychiatrist, dietitian, physiotherapist, pharmacy pharmacist, doctor or nurse.

The role of specially qualified persons with diabetes is thus to complement and strengthen other healthcare services by creating a supportive emotional and social environment and providing practical help needed for the management of the disease and maintenance of health. However, as this is a new attitude towards healthcare and health, it requires close follow-up and research into the actual effects, which should also form the basis for further ongoing learning about the roles and tasks of these specially trained individuals. Such a form of cooperation is new, and as different forms of support are acceptable in different social contexts and local environments, the functioning and upgrading of the roles and tasks of specially trained persons with diabetes need to be adapted locally.



There are fewer concerns about the training of people who are close to the person with diabetes or pre-school teachers and teachers of children with diabetes, as the education of each such individual is conducted by the healthcare team that manages the individual's diabetes care and thus defines the role and tasks of such individuals in agreement with them.

Guidelines until 2030:

- establish and build a system for specially trained individuals with diabetes to support other persons with diabetes through participation in healthcare teams, in associations of people with diabetes and in other ways and organise their activities in a way that ensures continuous monitoring of impacts and adaptation of training and organisation of activities;
- provide training for other persons without a medical background who can significantly contribute to better care for people with diabetes (for example their relatives, pre-school teachers, and teachers at primary and secondary schools).



## 16. DIABETES ASSOCIATIONS AND OTHER NON-GOVERNMENTAL ORGANISATIONS TAKE ON AN IMPORTANT ROLE IN DIABETES PREVENTION AND CARE

According to the Strategy of the Government of the Republic of Slovenia for Cooperation with Non-Governmental Organisations, associations of people with diabetes and other non-governmental organisations which, due to their interests and method of work, significantly contribute to the prevention and care of diabetes and to the promotion of a healthy lifestyle in general have been important partners in the development and implementation of national strategies ever since 2003. The Slovenian Diabetes Association was one of the initiators of the preparation of the 2010–2020 NDPCP and a proactive partner during its implementation. NGOs are organised and operate in various forms (as societies or associations). The main fields of their work are the promotion of a healthy lifestyle, offering active and continuous support for persons with types 2 and 1 diabetes, and providing assistance in education and raising awareness of people with diabetes, their families and friends, and persons more likely to develop type 2 diabetes. They also represent the interests of people with diabetes.

There are several programmes for people with diabetes organised by diabetes societies and other non-governmental organisations. The most widespread forms are lectures and workshops on healthy lifestyle, self-management of diabetes and self-care, new developments and new approaches in the treatment of diabetes, and foot check-ups, weight-loss schools, demonstrations on the composition and preparation of healthy and balanced food in accordance with the healthy eating guidelines, workshops and other activities to increase physical activity, stress management, and diabetes knowledge competitions in primary and secondary schools, etc. They are carried out in cooperation with healthcare professionals and other professionals.

People with diabetes (and their families and friends and others affected by diabetes) can also play an important role in making life with diabetes easier if they are properly trained and appropriately organise their activities. Please find more on this topic in the section on training.

Associations of people with diabetes and other non-governmental organisations can significantly contribute to life-long learning and awareness-raising on diabetes self-care.

Guidelines until 2030:

- strengthen, upgrade and modernise diabetes education and awareness-raising activities and extend them to all societies and other non-governmental organisations participating in the education and awareness-raising of people with diabetes;
- increase the number of various healthcare professionals and other experts cooperating with societies and other governmental organisations and train them accordingly;
- set standards for quality implementation of the societies' activities and provide a stable source of financing;
- increase the number of persons with diabetes actively involved in societies and their activities;
- set up and strengthen organised mutual help and support;



- promote the commitment and responsibility of people with diabetes to take care of their own health;
- ensure the use of more modern methods and approaches in the activities of the societies, for example the use of information technology.

Diabetes associations and other non-governmental organisations promote a healthy lifestyle and educate and raise awareness about the ways to prevent type 2 diabetes or to delay it to a later stage of life. Activities are aimed both at persons more likely to develop type 2 diabetes and at the general public.

Associations of people with diabetes also invite and include persons not suffering from diabetes in their activities. They also organise other activities, such as diabetes knowledge competitions in primary and secondary schools and seminars for mentor teachers who help children and students prepare for the competition. Such competitions are important from the aspect of awareness-raising and destigmatising people with diabetes among children and young people.

Guidelines until 2030:

- increase the number of persons with diabetes who are actively involved in societies and their activities;
- establish new forms of activities using information technology;
- provide for active networking of non-governmental organisations and participation in all national and local health promotion activities, such as their involvement in the activities of the Health Promotion Centre.

Associations of people with diabetes publish publications available to people with diabetes and the wider public. They also use information technology and modern approaches.

Such publications are, for example, the magazine *Sladkorna bolezen* (Diabetes), educational material for people with diabetes, their families and friends, and the general public, brochures and leaflets with an in-depth presentation of individual topics on the prevention and care of diabetes and its complications with an emphasis on healthy lifestyle, and brochures that inform the wider community on diabetes and measures to reduce the risk of its development. An important tool via which societies of people with diabetes communicate with the public is the website of the Slovenian Diabetes Association.

Guidelines until 2030:

- enlarge the scope of the magazine *Sladkorna bolezen* and improve its content, increase its number of copies and raise its public visibility;
- strengthen the publication of educational materials;
- promote the use of websites and other modern approaches and information technology.

Associations of people with diabetes and other non-governmental organisations represent the interests of people with diabetes.



NGOs cooperate with the Ministry of Health, the Health Insurance Institute of the Republic of Slovenia, and other health insurance institutes and healthcare organisations at the primary, secondary and tertiary levels in the organisation of the healthcare network for the care of people with diabetes, providing medicines, medical devices and education for optimum diabetes care and self-care. In this way, they contribute to the systemic improvement of care for people with diabetes and to a more efficient use of resources.

The Slovenian Diabetes Association as the representative of people with diabetes participates in the adoption of regulations and standards for people with diabetes. The Association and its societies work with the Ministry of Health and healthcare and other organisations in the organisation and implementation of activities to strengthen health.

Guidelines until 2030:

- strengthen the system of equal involvement of associations of people with diabetes in decision-making on the organisation, provision and implementation of care of people with diabetes;
- monitor the satisfaction of people with diabetes and their quality of life;
- strengthen cooperation with the health profession, government institutions (the Ministry of Health and other ministries) and payers of health services in relation to the care of people with diabetes;
- strengthen cooperation with the Ministry of Health and healthcare and other organisations in the organisation and implementation of activities to strengthen health;
- improve communication with the public and, in cooperation with the media, increase information for the public and key groups on decisions related to diabetes prevention and care;
- increase cooperation with other non-governmental organisations with similar interests and programmes of activities.



## 17. MANAGING, MONITORING AND COORDINATING THE IMPLEMENTATION OF THE NATIONAL PROGRAMME AND ITS EFFECTIVENESS

The experience of managing and monitoring the implementation of the 2010–2020 NDPCP shows that the most effective measures and activities were those that focused not only on the content but also on the method of implementation of activities, i.e. on the process of preparation and the partners to be actively involved in the programme. We have experienced pressures from the international environment (for example the OECD report on the high number of amputations in Slovenia) and transposed them into increased activities in this field. One of the values of the 2010–2020 NDPCP is its complementarity, which has contributed, for example, to successful connections with the project of reference family medicine clinics in strengthening family medicine teams and in upgrading health promotion centres with activities aimed at diabetes prevention and care. A networked, participative management with key persons having the characteristics of system leaders has been set up. The coordination group maintains a culture of friendly and respectful dialogue, of networking and of joint hard work, which has been defined as a common direction in the 2010–2020 NDPCP. Representatives of professional healthcare groups have learned about the values, tasks, competences and responsibilities of healthcare system managers and policymakers and started to work with them. Healthcare system managers, in turn, have invited the representatives to contribute substantively to all key decisions. The voice of representatives of people with diabetes was heard, while opinions and views were taken into consideration in the dialogues according to the principle "nothing about us without us".

The implementation of the objectives of the national programme should be continuously monitored and evaluated, while action should be adapted to new scientific knowledge and experience on the effectiveness of individual measures.

To ensure coordination and monitoring of the implementation of the national programme objectives, a coordination working group has been appointed at the Ministry of Health whose task is to propose two-year action plans for the implementation of the programme and the set objectives. Each year, the coordination working group prepares a report on the performance of the action plan in the current year and a joint report after the completion of each action plan, which is then the starting point for planning future two-year action plans. Upon the termination of the national programme in 2030, the coordination action group will prepare a final report including an assessment of the national programme implementation, and on the basis of the report and the assessment, the Ministry of Health will propose further action to the Government of the Republic of Slovenia. Upon the completion of the 2020–2030 NDPCP, an external evaluation is foreseen.

The coordination working group includes representatives from ministries, the health profession, civil society and the Health Insurance Institute of Slovenia.

The key tasks of the coordination working group are monitoring and integration in the processes within and beyond the healthcare system which are important for diabetes prevention and care and include the following: strengthening health literacy and supporting the process of empowering individuals and organised representatives of people with diabetes for successful diabetes self-management at the level of an individual with diabetes, for successful participation in a community



approach to strengthening health at the municipal level, and for participation in making decisions on systemic actions at the national level; coordination and interconnection of the healthcare system across different levels, with individual professions, within the healthcare team and with the social assistance system; monitoring of diabetes prevention and care; nurturing partnership; and monitoring the 2020–2030 NDPCP.

#### Guidelines until 2030:

- ensure and strengthen the system of monitoring, coordinating and evaluating the impacts of the national programme implementation and reporting on the progress;
- ensure continuous monitoring of processes relevant for diabetes management and appropriate integration in these processes where this is important for diabetes prevention and care (the information system on health, changes in health legislation, etc.);
- ensure, strengthen and expand partnerships for the implementation of the national programme;
- provide and strengthen an effective system of informing stakeholders and the wider public about the progress in managing diabetes;
- establish, provide and strengthen processes, including with the use of appropriate information and communication technology, for the evaluation of the economic effects of measures and the development of a cost model to estimate the economic burden of diabetes and to bridge information gaps to estimate the burden of diabetes and ensure that these processes are also supported by a legal basis for collecting relevant data at the national level.





## 18. PARTNERSHIP IS BASED ON TRUST AND FINDING CONSENSUAL SOLUTIONS

Already during the years of preparation of the 2010–2020 NDPCP, i.e. from 2005 to 2009, representatives of the partners were coordinating their values, positions and relations, and it was indeed the formation of strong common values that was the first condition for the development of the 2010–2020 NDPCP. The written guidelines were the result of coordination of various cultures among the partners in the preparation of joint activities where one of the partners was the leading partner but the contribution of other partners was also very important. In the 2010–2020 period, the partners increasingly went beyond the boundaries of their (until then) usual work, taking risks, looking for solutions – often in cooperation with other partners – and identifying potential wrong paths. The inclusion of new partners and mutual respect and trust are the bases for the development and implementation of breakthrough activities which will be all the more urgent in the decade 2020–2030.

An overall approach to the management of diabetes as one of the major chronic diseases requires the participation of various bodies and institutions.

Cooperation needs to be established at the national and local levels. In the field of diabetes prevention, strategies related to nutrition, obesity prevention and promotion of physical exercise ensure cooperation between partners from various professional fields who are of key importance for the establishment of conditions in which each individual can lead a healthy lifestyle. These include in particular partners in the fields of education and sport, social affairs, transport, spatial planning, agriculture, science, the economy, and tourism. Another important partner in monitoring, implementing and advocating the 2020–2030 NDPCP are non-governmental organisations. An excellent policy platform for inter-sectoral actions and activities is the ReNPPTDZ 2015–2025, while for the activities in local communities, the operation of health promotion centres with a focus on a community approach to health is important.

Guidelines until 2030:

- ensure and strengthen sustainable inter-sectoral cooperation in all areas important for the management of diabetes risk factors by supporting the implementation of the ReNPPTDZ 2015–2025 and cooperating with health promotion centres in local communities;
- provide and strengthen the participation of NGOs in monitoring and implementing the NDPCP.

The success of the national programme requires coordinated and integrated action on the part of all partners based on common values and objectives, trust, complementarity, finding consensual solutions, and sharing of results.

The range of potential partners is wide and their interests can sometimes be conflicting. Key partners in managing diabetes are mostly those who significantly contribute to reducing the incidence of diabetes and its early detection through their activities and to the quality care of people with diabetes.

In the healthcare system, all levels of healthcare participate in the prevention of diabetes and the care of people with diabetes, including public health services which play an



important role in raising public awareness, promotion activities, and the monitoring of people with diabetes and the management of the disease. Providers at the primary, secondary and tertiary levels must ensure cooperation in order to provide comprehensive care of people with diabetes by actively involving people with diabetes and providing the best possible care in terms of its quality and efficiency.

Cooperation between all relevant professional associations, the Ministry of Health and the sources of funding is crucial for the development of expertise in the area, better organisation and adequate financing of all activities.

Another important partner is the media, which play a crucial role in raising awareness and informing the general public.

Guidelines until 2030:

- identify the motives for cooperation between various partners, common specific objectives and cases where cooperation can be of great benefit to all individual partners;
- ensure and strengthen sustainable cooperation between partners based on common values and objectives, complementarity, trust, the search for consensual solutions, and sharing of results.

The objectives of the national programme cannot be achieved without the integration of people with diabetes in the planning and implementation of all activities in the field of diabetes management.

People with diabetes are the primary target group of the national programme. Their experience makes them an invaluable partner for all those engaged in the management of diabetes. As partners, they are involved in the prevention, early detection and treatment of diabetes, in the rehabilitation of and provision of education and awareness-raising to people with diabetes, in strengthening health literacy and support in the process of empowerment for successful diabetes self-management, and in the provision of peer support. Their mission also includes monitoring action to manage diabetes, proposing changes and raising public awareness.

Guidelines until 2030:

- consistently involve people with diabetes as key partners in the planning and implementation of activities aimed at managing diabetes.