

JA-CHRODIS Work Package 7

Diabetes: a case study on strengthening health care for people with chronic diseases

Survey on practices for prevention and management of diabetes



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Table of Contents

Executive summary	3
Acknowledgements	6
Introduction	8
Methods	9
Results	17
General Information	11
Prevention of diabetes focus on people at high risk	13
Management of diabetes	17
Education programs for persons with diabetes and training for professionals	24
Education programs for persons with diabetes	24
Training programs for professionals	30
APPENDIX 1 - Data and notes by Country	35
APPENDIX 2 - Programs/ experiences reported in the questionnaires	52

Executive Summary

This report presents the results of the survey on practices for prevention and management of diabetes among the partners of the European Joint Action on Chronic Diseases and Promoting Healthy Ageing across the Life Cycle (JA-CHRODIS), and other countries not involved in the JA.

One of the main objective of JA-CHRODIS is to promote and facilitate a process of exchange and transfer of good practices between European countries and regions, addressing chronic conditions, with a specific focus on health promotion and prevention of chronic conditions, multi-morbidity and diabetes. In the frame of the JA-CHRODIS, diabetes is considered a case study on strengthening health care for people with chronic diseases.

The work package on diabetes (WP7) focuses on all the major aspects of a serious disease like diabetes: identification of people at high risk, prevention and early diagnosis, health promotion in people with diabetes, comprehensive multifactorial care, prevention of complications, educational strategies for people with diabetes and training for health professionals. To provide an overview on practices for prevention and management of type 2 diabetes, the WP7 team conducted a survey organized in two phases: the first had the objective to provide a structured overview about current programs (interventions, initiatives, approaches or equivalents) that focus on aspects of primary prevention of diabetes, identification of people at high risk, early diagnosis, prevention of complications of diabetes, comprehensive multifactorial care, education programs for persons with diabetes and training for professionals; the second phase is devoted to an in-depth analysis of the programs identified in the first one.

This report presents the results of the first phase of the survey.

The survey was not intended to provide an exhaustive description of all the activities on diabetes in the participating countries, in fact the partners were asked to report plans, programs, interventions, strategies, experiences that they felt worth to be reported and shared. Implicit in this activity is the assumption that the description of experiences is an effective means to make own experience available to others, and to create a capital of knowledge that can be shared and used in the future.

Summary results

A total of nineteen countries, with 63 experts, contributed to the collection of data on prevention and management of diabetes. Seventeen of them were involved in the JA-CHRODIS, Romania was reached through EPF, and Hungary by its representative in the JA Advisory board. Data were collected in the period December 2014 to April 2015.

The degree of completeness varied as a function of the National policies on diabetes, of availability of data, and of the partner who filled the questionnaire. As an example, in

Belgium the questionnaire was filled in by the European Patient Forum, and reflects their view and knowledge about Belgian context. In Ireland, the European Institute of Women's Health gave its overview only on policies and interventions on patient education.

Thirteen countries out of the 19 responders have a National Diabetes Plan and most of them have policies and legislation at national level that support diabetes prevention, early identification of people at high risk, education for persons with diabetes and training for professionals. Early identification of people at high risk of diabetes too often lacks in national policies. The education of people with diabetes and training for professional are supported by national policies and legislation by the 79% of the countries even if, in some of them, they don't seem to be implemented, in fact no specific programs/interventions are reported. In about two third of the countries (68.4%), the national information system provides data on prevalence or incidence of diabetes.



PREVENTION OF DIABETES - FOCUS ON PEOPLE AT HIGH RISK

The role of prevention in the contrast of diabetes is stated fundamental. Type 2 diabetes, in particular, is preventable through lifestyle interventions, aiming at relatively modest lifestyle changes, provided for people at high risk to develop the disease.

In general, the importance of the prevention of diabetes is acknowledged and addressed in policy level, as 3 out of 4 countries report that diabetes prevention is supported by national policies and legislations. However, early identification of people at risk is supported only by 63.2%. This might indicate that prevention of diabetes is recognized at population level (e.g. advocating physical activity and healthy body weight as means to prevent diabetes) but specific action needs targeted at people at risk are not addressed in diabetes policies in all countries.



MANAGEMENT OF DIABETES

Persons with chronic diseases require not only effective treatment, but also continuity of care, and adequate information and support, so that they can achieve self-management to the greatest possible extent.

Almost all the countries, 18 out of the 19 respondents, have a management program for diabetes. About 63.2% of them are stand-alone national programs, and 57.9% are included in a more comprehensive national plan. Half of the participant countries stated that the programs were implemented in the last 10 years, and about 83% of all the implemented programs are currently running.

Only the 50% of the programs takes into consideration vulnerable groups, e.g. ethnic minorities and low socio-economic groups. Defined care pathways exist to deal with persons with diabetes, either with or at risk for micro- and macro vascular complications, in 77.8% of the countries. Most of the programs (72.2%) are monitored through intermediate outcome indicators, 66.7% used process indicators and only

44.4% long-term outcome indicators (Fig. B7). The 16.7% of the countries did not use any kind of indicator.

✓ EDUCATION PROGRAMS FOR PERSONS WITH DIABETES AND TRAINING FOR PROFESSIONALS

Education for persons with diabetes is considered an integral component of diabetes care, and it's intended mainly to develop skills in self-management and contribute to the patient empowerment. Effective education provision needs trained health professionals, with expertise in education and diabetes management.

On the whole, 15 out of the 19 participating countries reported education programs for persons with diabetes. A few countries stated to have an education program that exists in a stand-alone national program (15.8%), while 36.8% reported to have education programs that are included in a more comprehensive National plan. The core criteria of the quality of education programs are defined, e.g. the goal, the rationale, the target group, the setting, the scheduling of the education sessions. More than a half reported to have an evidence-based curriculum and defined specific education methods and didactics. Only the 60% reported that the curriculum is evaluated, and a low number of the participating organizations (20%) reported that long-term effect indicators were used.

Training programs for professionals exist in two out of three of the participating countries. The core criteria of the quality of training programs seem to be defined, e.g., the goal, the rationale, the target group, the setting, the scheduling of the training sessions. More than a half reported to have an evidence-based curriculum and defined specific training methods and didactics. Only a low number (38.5%) reported that a monitoring of effectiveness and quality of the training program is defined. Less than a half reported that the training program is based on a theory driven curriculum and only the 30.8% reported that intermediate outcome indicators are applied to measure training programs.

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Introduction

The European Joint Action on Chronic Diseases and Promoting Healthy Ageing across the Life Cycle (JA-CHRODIS) addresses the challenge of the increased burden that chronic conditions and diseases place on the health systems and individuals. One of the main objective of JA-CHRODIS is to promote and facilitate a process of exchange and transfer of good practices between European countries and regions, addressing chronic conditions, with a specific focus on health promotion and prevention of chronic conditions, multi-morbidity and diabetes.

In the frame of the JA-CHRODIS, diabetes is considered a case study on strengthening health care for people with chronic diseases. Diabetes is a common and serious disease: it increases the risk for many serious health problems (e.g, hypertension, cardiovascular diseases, eye problems, neuropathy, foot complications, nephropathy), but can be prevented and effectively controlled using available knowledge. With correct treatment and recommended lifestyle changes, many people with diabetes are able to prevent or delay the onset of complications.

The work package on diabetes (WP7) focuses on all the major aspects of a serious disease like diabetes: identification of people at high risk, prevention and early diagnosis, health promotion in people with diabetes, comprehensive multifactorial care, prevention of complications, educational strategies for people with diabetes and training for health professionals. JA-CHRODIS is not a research project, thus its main objective is to use the knowledge already available, to improve coordination and cooperation among countries to act on diabetes, including the exchange of good practices, and to create ground for innovative approaches to reduce the burden of chronic diseases. Special emphasis is also given to support the development and implementation of National Diabetes Plans.

To provide an overview on practices for prevention and management of type 2 diabetes, the WP7 team conducted a survey organized in two phases: the first had the objective to provide a structured overview about current programs (interventions, initiatives, approaches or equivalents) that focus on aspects of primary prevention of diabetes, identification of people at high risk, early diagnosis, prevention of complications of diabetes, comprehensive multifactorial care, education programs for persons with diabetes and training for professionals; the second phase is devoted to an in-depth analysis of the programs identified in the first one. In this report we describe the results of the first phase of the survey.

The survey was not intended to provide an exhaustive description of all the activities on diabetes in the participating countries, in fact the partners were asked to report plans, programs, interventions, strategies, experiences that they felt worth to be reported and shared. Implicit in this activity is the assumption that the description of experiences is an effective means to make own experience available to others, and to create a capital of knowledge that can be shared and used in the future.

Methods

The questionnaire was organized in 3 sections: A - Prevention of diabetes: focus on people at high risk; B - Management of diabetes; C - Education programs for persons with diabetes and training for professionals.

Each section was divided in 3 parts. The first and second part of each section is dedicated to a structured description of the main program (intervention, initiative, approach or equivalent) at national, sub-national or local level. The third part of each section is dedicated to a short description of other (up to 3) plans, programs, interventions, strategies, experiences that the responders felt worth to be reported and shared. The lists of all the programs are reported in the Appendix 2.

The questionnaire was distributed to all the partners (associated and collaborating) of JA-CHRODIS. Moreover, the European Patient Forum (EPF, WP7 associated partner) helped in finding experts from countries not involved in the JA. The partners were invited to identify and invite experts working on diabetes (e.g. experts from national, regional and local health institutes or public authorities, associations of persons with diabetes, professionals involved in the care of persons with diabetes, ...) to contribute in filling in the questionnaire. A web-based version of the questionnaire was available, thus the responders could choose which version (pdf or web) to use.

In the countries where more than one partner was present, we asked the partners to work on a unique questionnaire to provide a Country overview.

Data were collected in the period December 2014 to April 2015. Data were summarized and reviewed by each responder.

Descriptive analysis

A summary descriptive analysis is done for each question indicating the frequency of countries by each response option. Blank answers were considered as “No”.

Percentages are calculated as the total of positive responses on the total of the countries involved in the survey. For the questions related to specific programs/interventions, the analyses were restricted only to countries that reported some of them.

Each structured question is described by frequency tables and graphs (column and bar charts).

A detailed description with data and notes by Country is reported in the Appendix 1.

Results

A total of nineteen countries, with 63 experts, contributed to the collection of data on prevention and management of diabetes. Seventeen of them were involved in the JA-CHRODIS, Romania was reached through EPF, and Hungary by its representative in the JA Advisory board.

The degree of completeness varied as a function of the National policies on diabetes, of availability of data, and of the partner who filled the questionnaire. As an example, in Belgium the questionnaire was filled in by the European Patient Forum, and reflects their view and knowledge about Belgian context. In Ireland, the European Institute of Women's Health gave its overview only on policies and interventions on patient education.

Table 1. List of countries involved in the survey

Partnership*	Country	Institution	Number of experts involved [§]
CP	Austria	Gesundheit Österreich GmbH (Austrian Health Institute)	5
AP	Belgium	European Patients' Forum (EPF)	2
CP	Croatia	Andrija Stampar (Institute of Public Health)	2
CP	Cyprus	Ministry of Health Cyprus	5
AP	Finland	National Institute for Health and Welfare (THL)	3
CP	France	Ministry of Health	3
AP	Germany	Technische Universität Dresden (TUD) Heinrich-Heine University (HHU)	13
AP	Greece	"Sotiria" General Hospital of Athens	4
MS	Hungary	National Institute for Health Promotion	2
AP	Ireland	European Institute of Women's Health (EIWH)	2
L	Italy	National Institute of Health (ISS)	3
AP	Lithuania	Vilnius University (VUHSK)	3
AP	Netherlands	Netherlands Institute for Health Services Research (NIVEL)	1
AP	Norway	The Norwegian Directorate of Health (HOD)	1
AP	Portugal	APDP - Diabetes Portugal	5
MS	Romania	Romanian Federation of Diabetes Persons Associations	3
Co-L	Slovenia	National Institute of Public Health (NIJZ)	1
AP	Spain	Agency for Health Technology Assessment, National Institute of Health Carlos III (ISCIII)	3
CP	United Kingdom	NHS England	2
<i>Total</i>		<i>19</i>	<i>63</i>

*AP: Associated Partners. CP: collaborating Partners. L: Leader. Co-L: Co-leader. MS: Member State.

§ The number of involved experts includes also the contact person

General Information

Thirteen countries out of the 19 responders have a National Diabetes Plan and most of them have policies and legislation at national level that support diabetes prevention, early identification of people at high risk, education for persons with diabetes and training for professionals (Fig. 1, Table 2). Early identification of people at high risk of diabetes too often lacks in national policies. The education of people with diabetes and training for professional are supported by national policies and legislation by the 79% of the countries even if, in some of them, they don't seem to be implemented, in fact no specific programs/interventions are reported.

In about two third of the countries (68.4%), the national information system provides data on prevalence or incidence of diabetes, in 9 countries (47.4%) both the information are available.

Figure 1. Elements supported by national policies and legislations

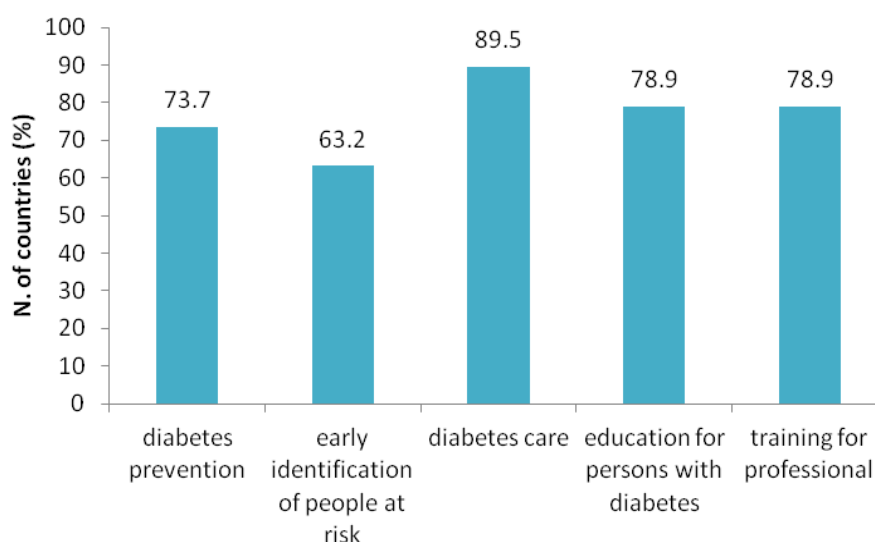


Table 2. Country with a National Diabetes Plan (NDP) and elements supported by national policies and legislation

Legend:

•	Yes
	No/Data not available

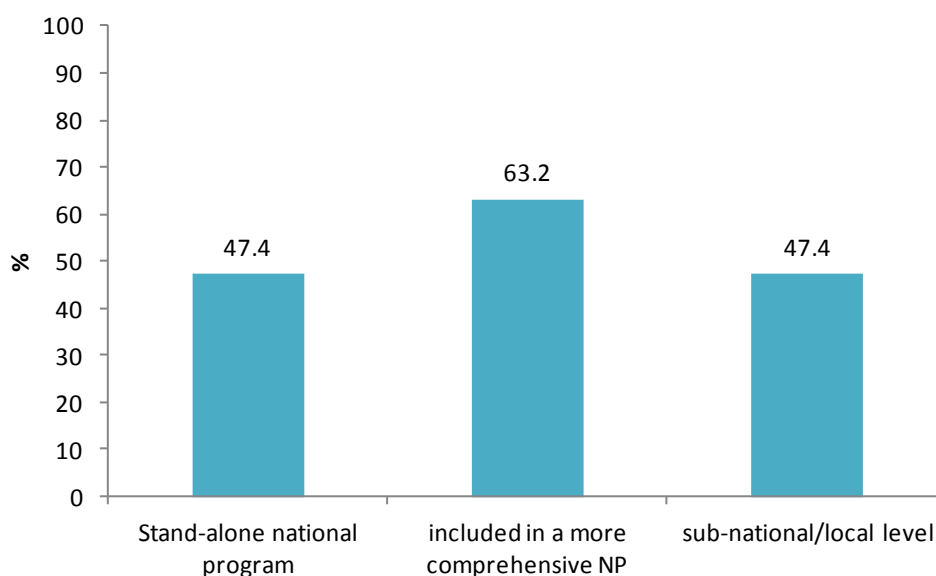
	NDP	Diabetes prevention	Early identification of people at risk	Diabetes care	Education for people with diabetes	Training for professional
Austria		•	•	•	•	•
Belgium						
Croatia	•	•		•	•	•
Cyprus	•	•		•	•	•
Finland	•	•	•	•	•	•
France		•		•	•	•
Germany				•	•	•
Greece	•	•	•	•	•	•
Hungary	•	•	•	•		
Ireland						
Italy	•	•	•	•	•	•
Lithuania			•	•	•	•
Netherlands	•	•	•	•	•	•
Norway	•			•	•	•
Portugal	•	•	•	•	•	•
Romania	•	•	•	•	•	•
Slovenia	•	•	•	•	•	•
Spain	•	•	•	•		
United Kingdom	•	•	•	•	•	•
<i>Total:</i>	<i>13</i>	<i>14</i>	<i>12</i>	<i>17</i>	<i>15</i>	<i>15</i>

A - PREVENTION OF DIABETES - FOCUS ON PEOPLE AT HIGH RISK

The role of prevention in the contrast of diabetes is stated fundamental. Type 2 diabetes, in particular, is preventable through lifestyle interventions, aiming at relatively modest lifestyle changes, provided for people at high risk to develop the disease. The development into overt diabetes can take many years, this “lag period” is an important window of opportunity for preventive actions, and offers the time to prevent or delay the development of diabetes among these individuals at risk. Therefore, interventions to prevent the development of diabetes in these high-risk individuals should be an integral part of a comprehensive diabetes plan and included in clinical guidelines for diabetes.

In general, it seems that the importance of the prevention of diabetes is acknowledged and addressed in policy level, as 3 out of 4 countries report that diabetes prevention is supported by national policies and legislations (Fig. A1). However, early identification of people at risk is supported by fewer, only 63.2% (Fig. 1), that might indicate that prevention of diabetes is recognized at population level (e.g. advocating physical activity and healthy body weight as means to prevent diabetes) but specific action needs targeted at people at risk are not addressed in diabetes policies in all countries. Slovenia has a stand alone national diabetes program, and a parallel national program focusing on people at risk for cardiovascular diseases, that includes prevention of diabetes and identification of people at high risk. In Belgium there are different programs in place at local, sub-regional, and sub-national level, however, the content does not vary hugely as they are based on international guidelines and standards.

Fig A1. Percentage of the countries having diabetes policies with specific prevention targets



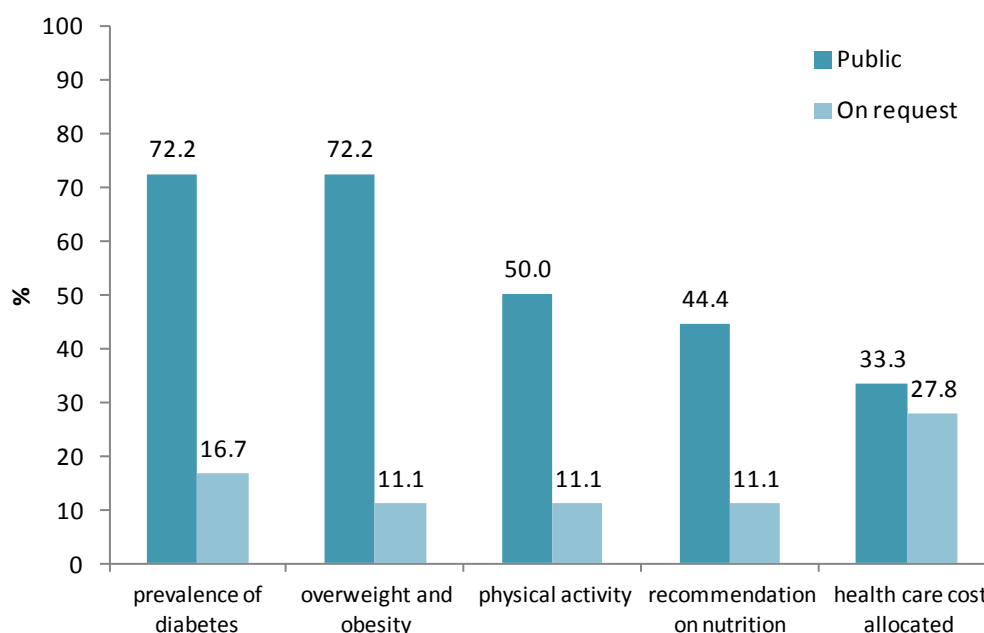
Note. The sum of the percentage is not 100% because the options are not mutually exclusive. Some countries, as Spain, Cyprus, Croatia, UK and Finland have a stand-alone national program included in a more comprehensive national plan.

Lithuania has not specific strategies for diabetes prevention, and Ireland (EIWH) didn't provide information on this topic. Both of them were excluded from the following analyses, and the percentages are calculated using 17 countries as denominator, except for data reported in Fig A2 for which Lithuania answered.

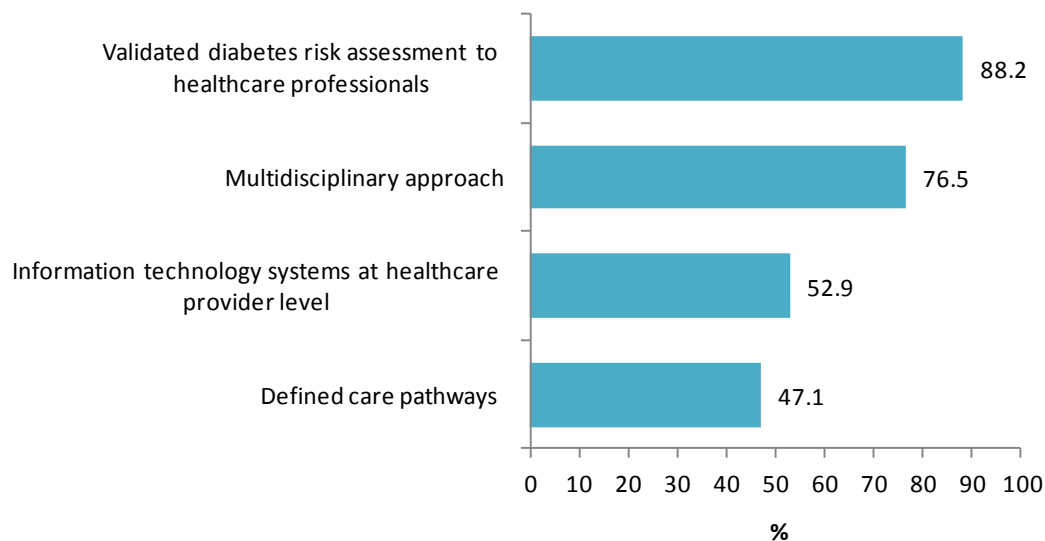
Diabetes is known to affect disproportionately different social classes: people with lower education or income are known to have higher prevalence of diabetes and some ethnic groups are more at risk than others. Therefore it is of somewhat concern that 33.3% of the countries respond that these “vulnerable” population groups are not taken into consideration in diabetes prevention strategies

Prevalence of diabetes, overweight and obesity and physical activity are public information available at population level (based on either registers or representative samples/cohorts), but less frequently the countries have information on health care cost allocated to prevention programs (Fig A2).

Fig A2. Available data at population level



The respondents are quite confident that the health care professionals in their countries are well educated about basics of diabetes prevention, with 94.4% reporting “yes” to the specific question. However, it is of concern whether this knowledge is implemented in actual work at optimal level. The majority (82.4%) of countries have screening protocols/guidelines available for identification of high-risk persons, but only the 29.4% are evaluated at population level. Validated diabetes risk assessment tools are available to healthcare professionals in almost all (88.2%) the respondent countries. Multidisciplinary approach to prevention, which is considered one of the cornerstones of efficacious prevention, is reported by 76.5%, systems supporting prevention by 52.9%, and defined care pathways for prevention by only 47.1% of respondents (Fig A3).

Fig A3. Available tools

Statistics on the processes related to preventive activities are in general seldom available, about 1 in 10 countries reporting that they know how many high-risk individuals are remitted to diagnostic procedures or lifestyle interventions, or achieving changes in risk factors (Fig. A4). Furthermore, interventions for diabetes prevention often lack assessment of individual's risk factor profile and discussion of motivation for behavioural changes. About the half of the countries report that the structure and content of the interventions, individualized targets, or follow-up plan are defined (Fig. A5).

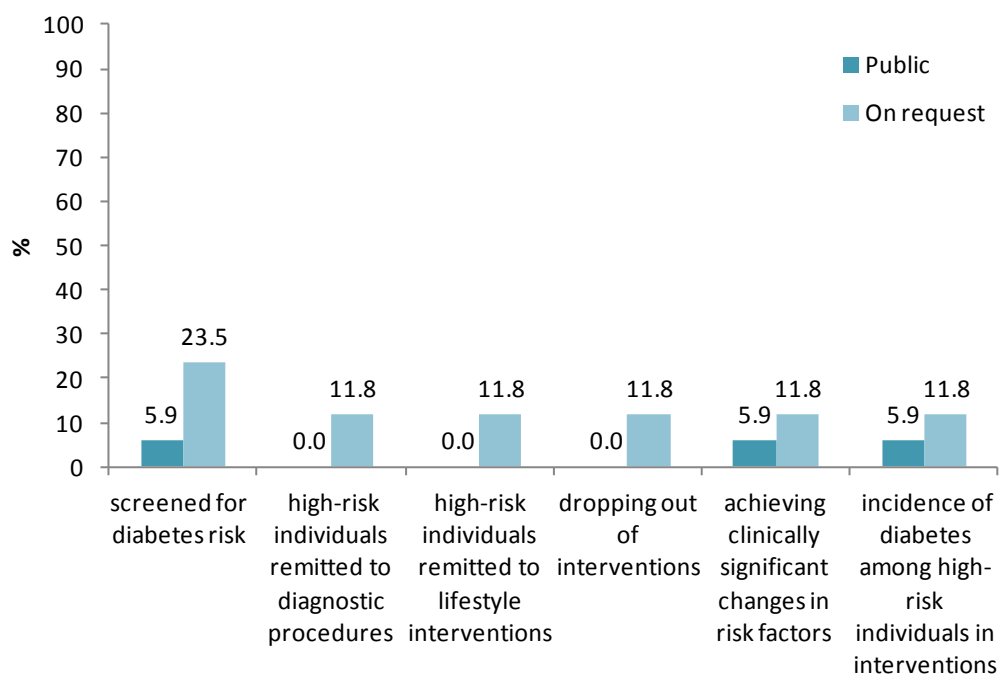
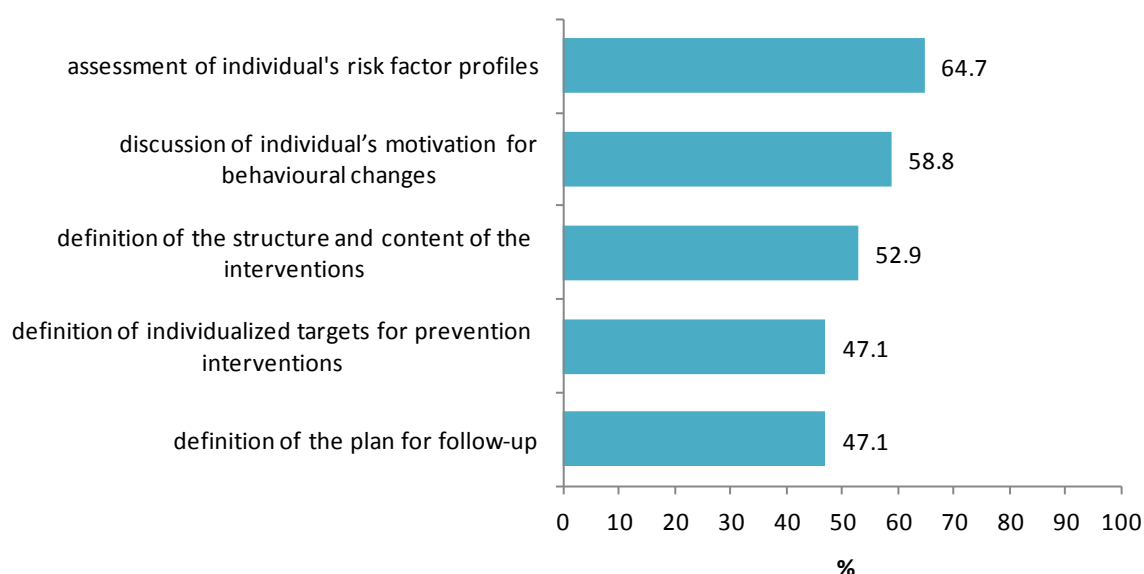
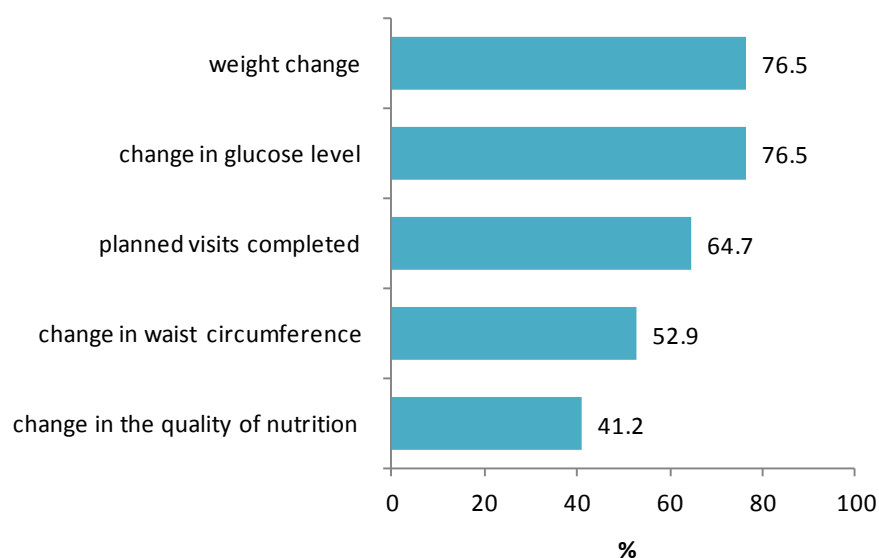
Fig A4. Available data and statistics

Fig A5. Components of interventions for diabetes prevention

Information on change in body weight is generally available as well as change in glucose (76.5%) but only 41.2% report that information about change in nutrition is available (Fig. A6). The frequent lacking of information of quality measures might prevent the evaluation of the effects of preventive actions and thus be a barrier against quality improvement.

Fig A6. Information available at the individual level

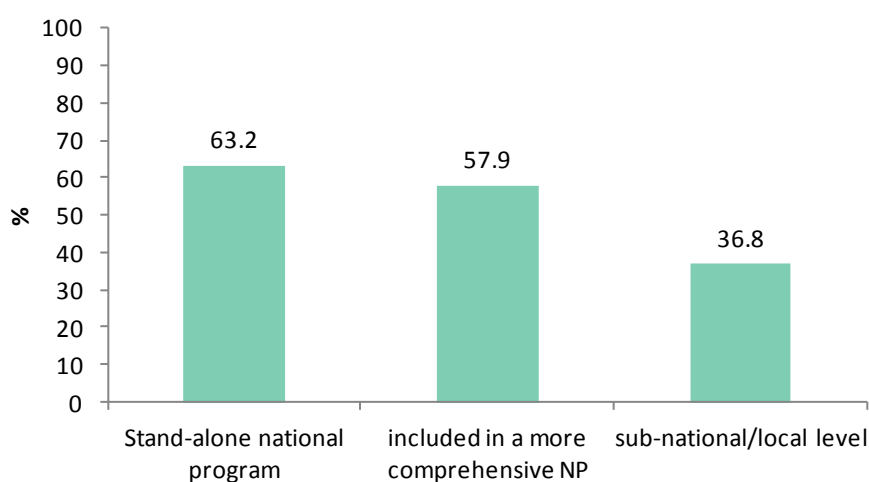
Four elements may be considered as the keys for an efficacious prevention of diabetes among people at risk: national diabetes policies with specific prevention targets, screening protocol to identify high risk persons, defined care pathways and multidisciplinary approach. Among the participating countries only 36.8% has all the four elements, the percentage rises to 72.9% if we consider only 3 of these elements.

B - MANAGEMENT OF DIABETES

Persons with chronic diseases require not only effective treatment, but also continuity of care, and adequate information and support, so that they can achieve self-management to the greatest possible extent. The evidence strongly suggests that to improve the quality of care for people with diabetes, and for most people with chronic diseases, we need to reshape health care systems to facilitate the transition from fragmentation to integration of care. A redesigned care system should include an organized multi component approach, along with a real partnership between citizens and health professionals, and between primary and secondary care, so as to achieve long-term coordinated care with and around the needs of persons with diabetes.

About all the countries, 18 out of the 19 respondents, reported to have a management program for diabetes. About 63.2% of them are stand-alone national programs, and 57.9% are included in a more comprehensive national plan (Fig. B1). Some countries as Croatia, Cyprus, Hungary, Finland, Italy, Spain and UK have a stand-alone national program included in a more comprehensive national plan; Austria and Greece has only programs at sub-national or local level (Annex 1-Table B1). Ireland did not provide information on this topic and was excluded from the following analyses.

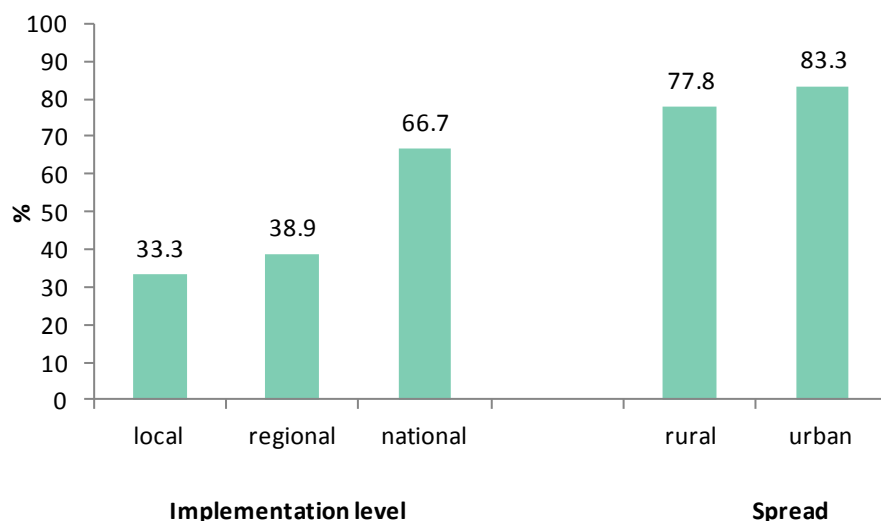
Fig B1. Percentage of countries with a diabetes management program



Note. The sum of the percentage is not 100% because the options are not mutually exclusive. Some countries as Cyprus, Croatia, Finland, Hungary, Italy, Spain and UK have a stand-alone national program included in a more comprehensive national plan.

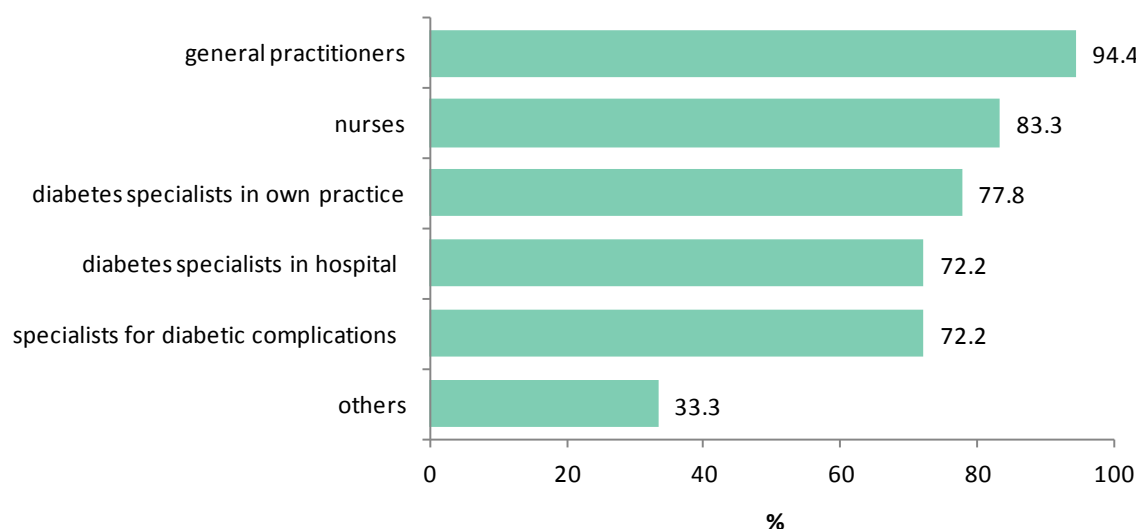
The implementation level is mostly national (66.7%), in 38.9% regional and only in 33.3% local. Five countries reported an implementation at national, regional, and local level (Annex 1- TableB1). The spread was urban as well as rural (Fig. B2).

Fig B2. Implementation level and spread



General practitioners are the health professionals mostly involved in the diabetes management programs (94.4%) followed by nurses (83.3%), diabetes specialists in own practices (77.8%), and diabetes specialists in hospitals as well as specialists for diabetic complication (72.2%) (Fig. B3). Only 9 countries involve all these health professional categories.

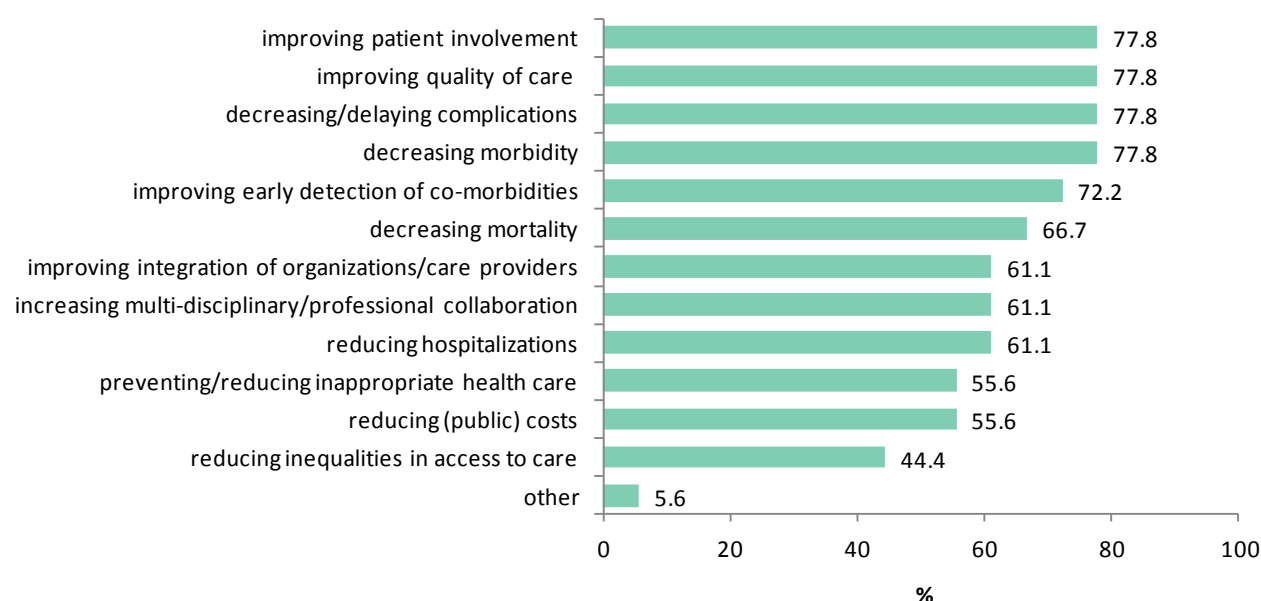
Fig B3. Health professionals involved in the diabetes management program



Others: diabetes-consultants (Austria); public health specialists (Croatia); dieticians, patient associations, healthcare managers (Italy); governmental decision makers, diabetes organization (Norway); diabetes educators (Spain); pharmacists (Slovenia).

The main objectives of the management programs are to improve patient involvement and the quality of care, and to decrease complications and morbidity (77.8%), followed by improving early detection of co-morbidities and decreasing mortality (Fig. B4). Reducing inequalities in the access to care was reported as one of the main objective of the program by only 9 countries.

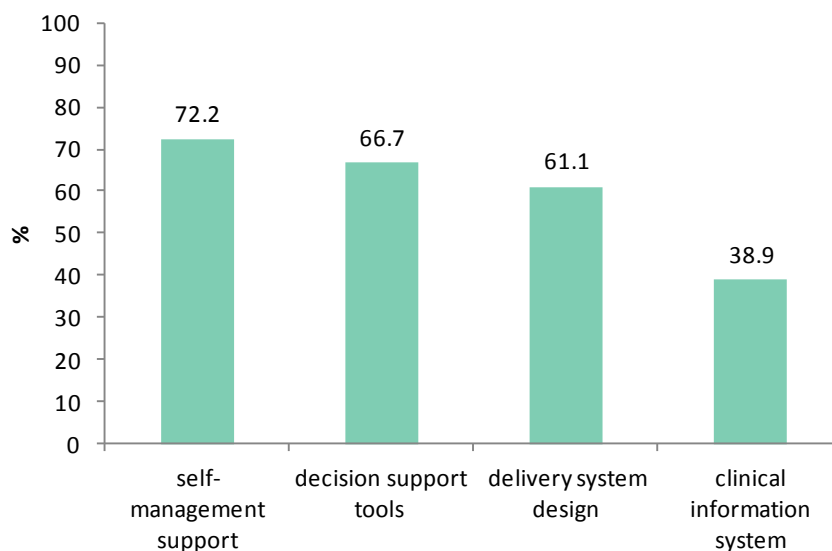
Fig B4. Main objectives



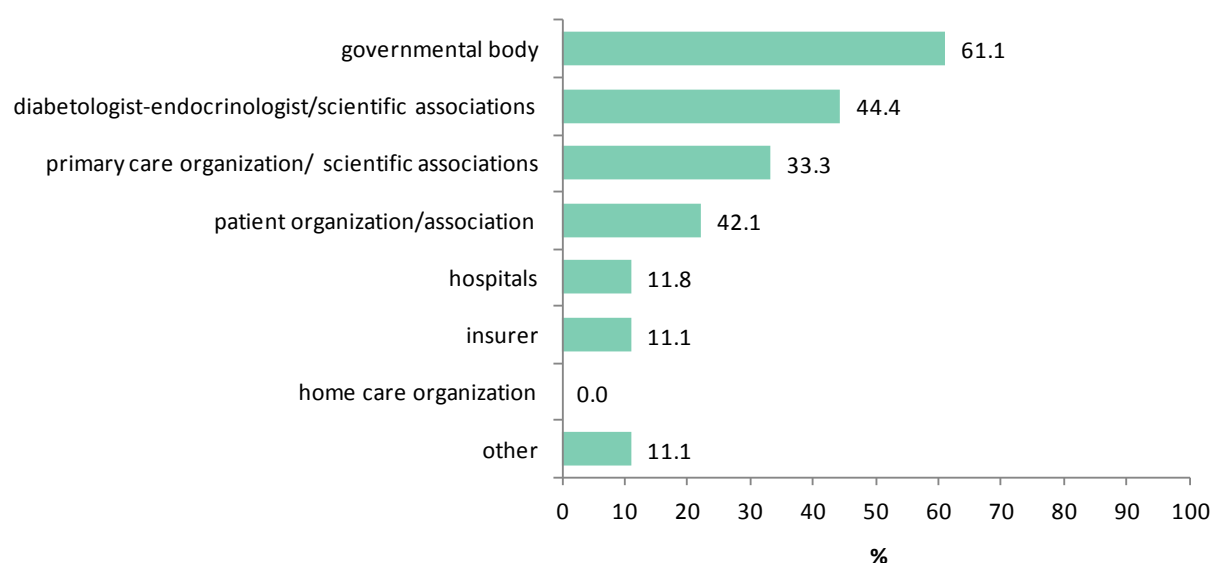
Other: develop a follow-up program for persons with type 2 diabetes in the municipalities (Norway).

Key components of the programs are self-management support (72.2%), decision support tools (66.7%) and delivery system design (61.1%). Clinical information systems are less present than the other components, being reported only by 38.9% of the responders (Fig. B5).

Only the 50% of the diabetes management programs take into consideration vulnerable groups, e.g. ethnic minorities and low socio-economic groups

Fig B5. Key components

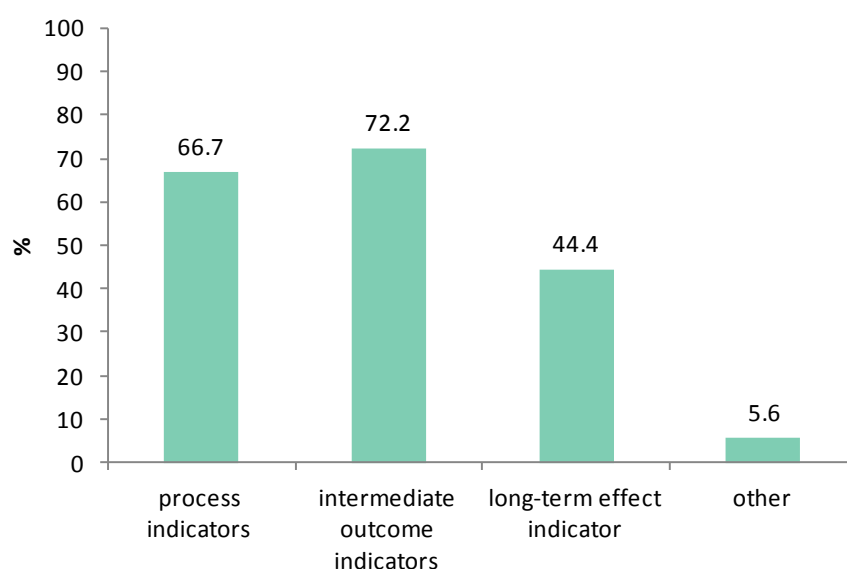
The most important promoter of the management programs is a governmental body (61.1%), followed by the scientific associations of diabetologists-endocrinologists (44.4%) (Fig. B6). Only one third of the diabetes management programs have more than 90% of the persons with diabetes involved, 16.7% involved 50 to 70% of the persons with diabetes, and 16.7% of the programs less than 30%. Half of the participant countries stated that the programs were implemented in the last 10 years, and about 83% of all the implemented programs are currently running. One Country stopped the program as planned, in another case the reason for closing the program was an insufficient management support.

Fig B6. Promoter of the management program

Other: public health institutes (Croatia); Steering Committee of National Diabetes Plan (Slovenia).

Most of the programs (72.2%) are monitored through intermediate outcome indicators, 66.7% used process indicators and only 44.4% long-term outcome indicators (Fig. B7). The 16.7% of the countries did not use any kind of indicator (Annex 1-Table B1.16).

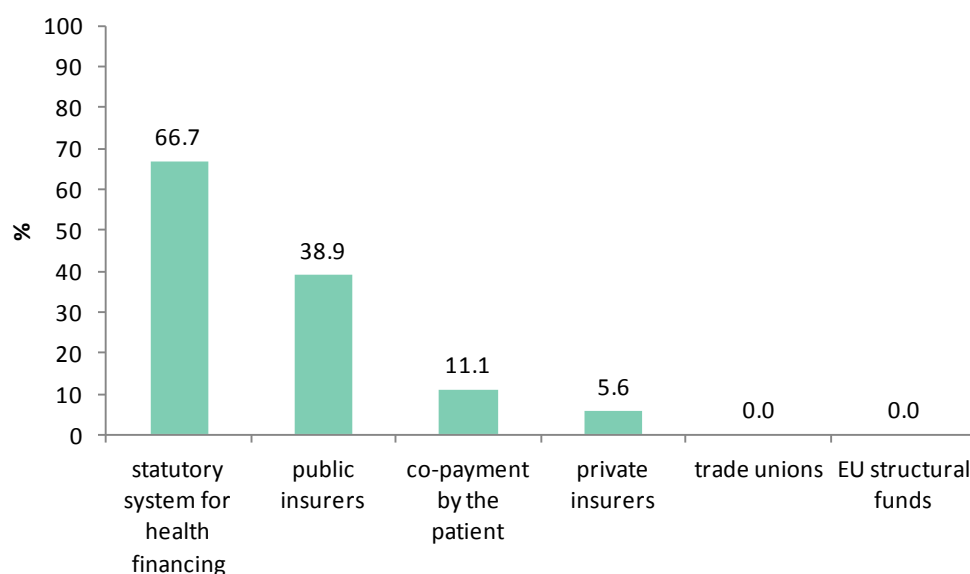
Fig B7. Indicators used for monitoring the management program



Other: implementation indicators (indicators for monitoring the implementation of the program) (Italy).

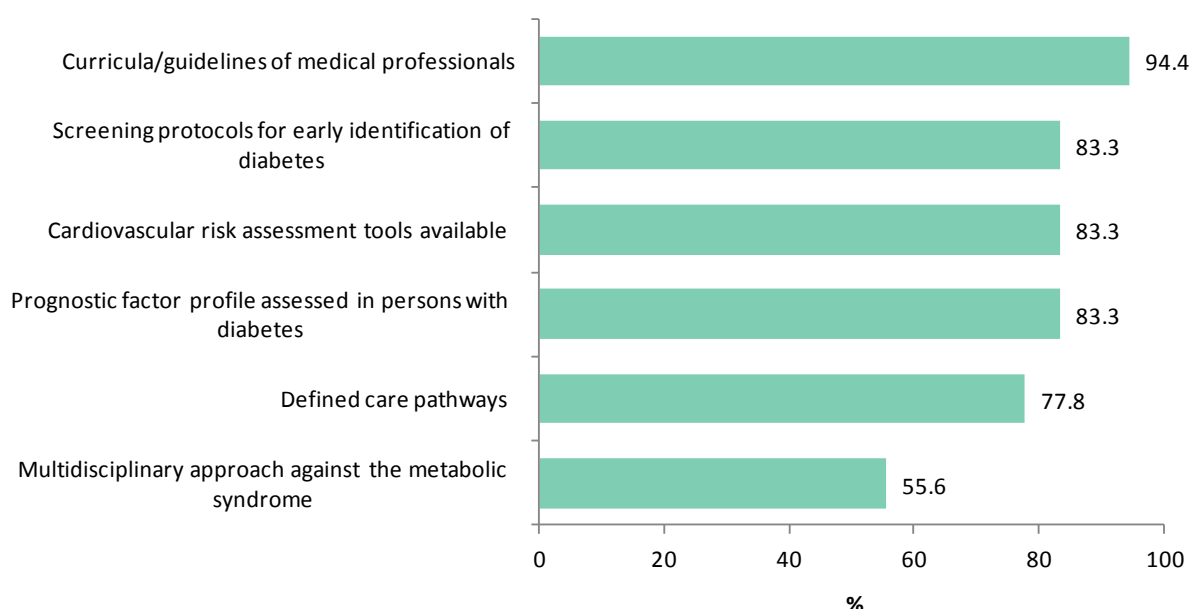
The diabetes management programs are mostly funded by statutory systems for health financing (66.7%), and by public insurer (38.9%) (Fig. B8). Half of the participating countries don't pay incentives to caregivers, 33.3% adopts a "pay for performance" incentive, and only 11.1% pays incentives for outcome.

Fig B8. Sources of funding for the management program

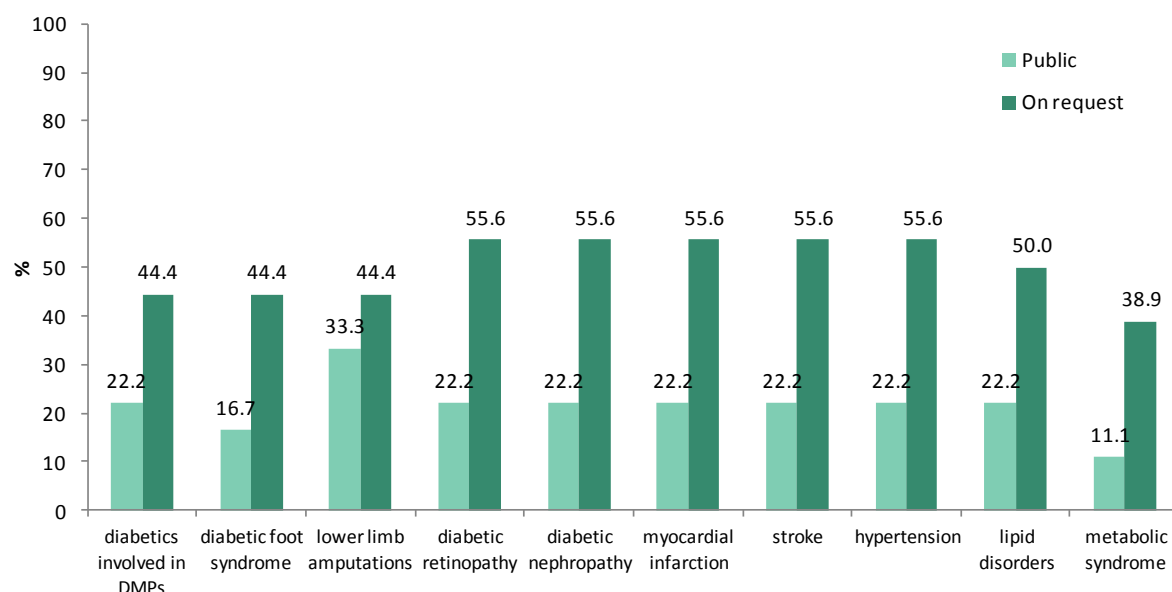
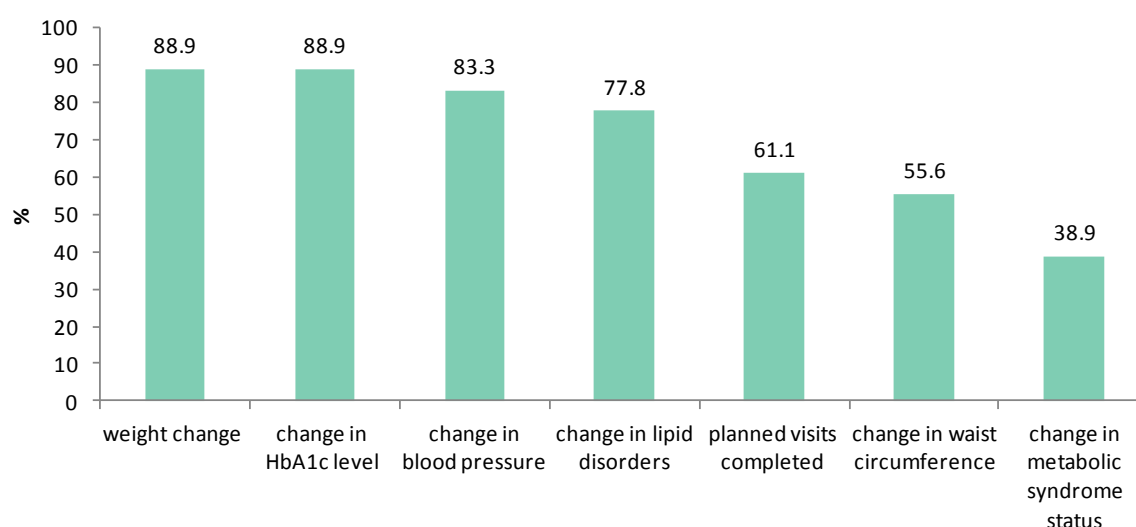


Almost all the participating countries stated that the basic knowledge of diabetes management is part of the curricula/guidelines of medical professionals. In the 83.3% of the countries the following elements are available: screening protocols/guidelines for early identification of diabetes, cardiovascular risk assessment tools for persons with diabetes, assessment of prognostic factor profiles in persons with diabetes (e.g. weight, lipid profile, blood pressure etc.). Defined care pathways exist to deal with persons with diabetes, either with or at risk for micro- and macro vascular complications, in 77.8% of the countries (Fig. B9). In 55.6% of the respondent countries the healthcare providers support multidisciplinary approaches for interventions against the metabolic syndrome.

Fig B9. Elements and tools of the program



Data, based on either register or representative samples/cohort of persons with diabetes, on the proportion of persons with diabetes involved in diabetes management programs, and complications/co-morbidities of diabetes are publicly available only in the 22-33% of the programs (Fig. B10). Data on the change of weight and HbA1c level are available at individual level and included in the individual patient record in about the 90% of the countries. Change in blood pressure and change in lipid disorders are available in about the 80% of the countries. The other data (planned visits completed, change in waist circumference, change in the presence of the metabolic syndrome) are available in the 39-61% of the programs (Fig. B11).

Fig B10. Available data/statistics at population level**Fig B11. Available data at individual level**

In summary almost all the countries, 18 out of the 19 respondents, have a management program for diabetes. Nevertheless only one third of the programs were characterized by the following elements:

- vulnerable groups considered
- at least one of 4 key components defined (self-management support, delivery system design, decision support tool, clinical information system)
- screening protocol/guidelines for early identification of diabetes available
- data on comorbidities/complications (e.g. diabetic foot syndrome, lower limb amputations, diabetic retinopathy, diabetic nephropathy,...) available
- defined care pathways for persons with diabetes, either with or at risk for micro- and macrovascular complications.

C - EDUCATION PROGRAMS FOR PERSONS WITH DIABETES AND TRAINING FOR PROFESSIONALS

Education for persons with diabetes is considered an integral component of diabetes care, and it's intended mainly to develop skills in self-management and contribute to the patient empowerment. Effective education provision needs trained health professionals, with expertise in education and diabetes management.

In the context of patient education, an education program is an international accepted and vital intervention with a targeted structure of education for people with diabetes with an evident effect on the therapy and prognosis of diabetes. Usually, it means that the core contents, goals, methods and didactics are described in a curriculum and materials or tools for the educators and participants are provided. Education for persons with diabetes is described as a complex intervention with special requirements on evidence and transparency regarding its rationale, methodology, performance and outcome representation.

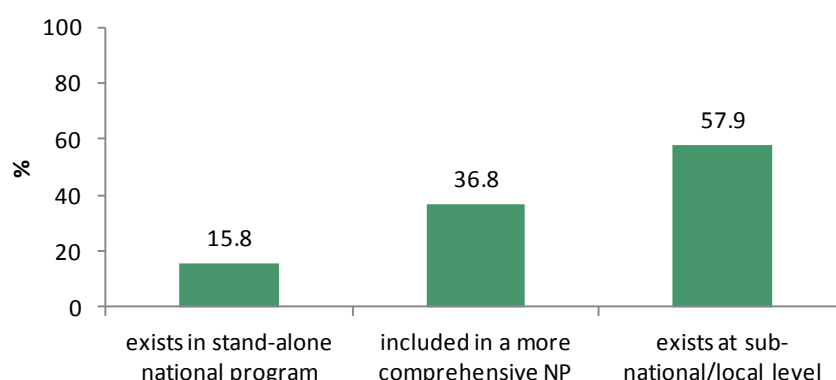
Health professionals need to be trained to become effective educators, and this entails that training programs and curricula are necessary to prepare people for the role of diabetes educator. Diabetes education is a specialty and requires knowledge and competence at an advanced level if it is to be delivered effectively.

Effective curricula, for both educators and people with diabetes, should have instructional strategies and approaches based on theories of learning, for example behaviourism, constructivism, social constructivism, that go beyond the cognitive level and addresses health determinants, social factors, attitudes, values, norms, and skills that influence specific health-related behaviours.

Education programs for persons with diabetes

On the whole, 15 out of the 19 participating countries reported education programs for persons with diabetes. Only a few countries stated to have an education program that exists in a stand-alone national program (15.8%), while 36.8% reported to have education programs that are included in a more comprehensive National plan. Slightly more than a half (57.9) of the participating countries reported to have education programs available at sub-national or local level that cover education activities for persons with diabetes (Fig. C1). Cyprus has a stand-alone national program included in a more comprehensive national plan. In Greece, the education of persons with diabetes depends on the diabetic clinics, the diabetes specialists or the GPs responsible for diabetes management and care. In diabetes clinics there are educational programs in which nurses, psychologists and dieticians are involved, but not a specific program or leading organization can be described.

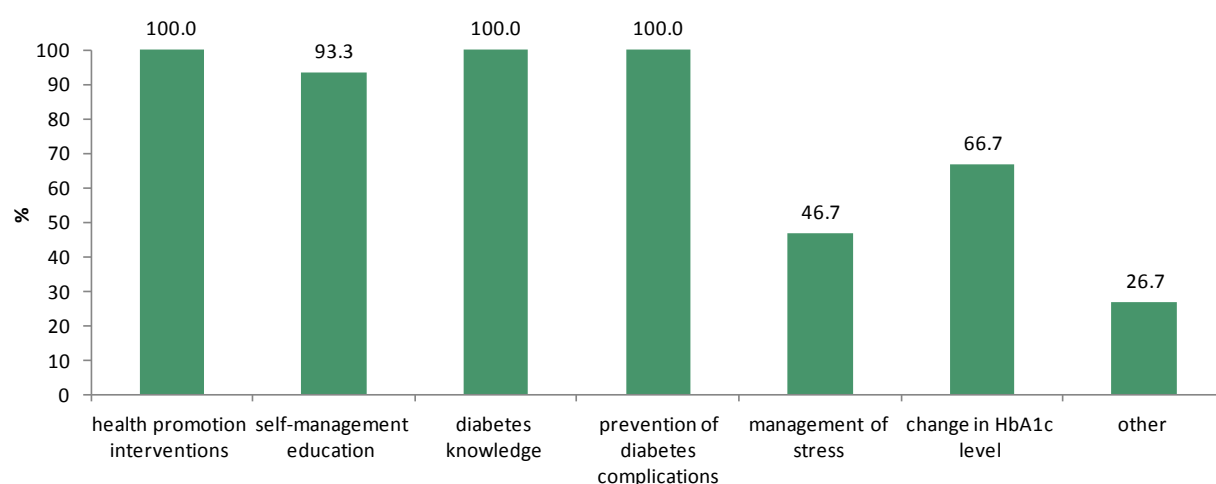
Fig C1. Percentage of countries with a program that covers education activities for persons with diabetes



Note. The sum of the percentage is not 100% because the options are not mutually exclusive.

Four countries did not have or did not describe education programs (Annex 1-Table C1), the analyses in the following section are relative to the 15 respondent countries. In Belgium education is provided at the point of diagnosis and thereafter. There are different education programs based on international guidelines depending on the region and sub-region of Belgium. The education topics health promotion, self-management education, diabetes knowledge, prevention of diabetes complications were reported to be considered in education programs in almost all the participating countries (Fig. C2). About 67% of the counties reported that the change in HbA1c level is a topic in education programs. Stress management (46.7%) and other situations (26.7%), e.g. pregnancy, illness, extensive physical activity, are less reported topics.

Fig C2. Topics included in the education program

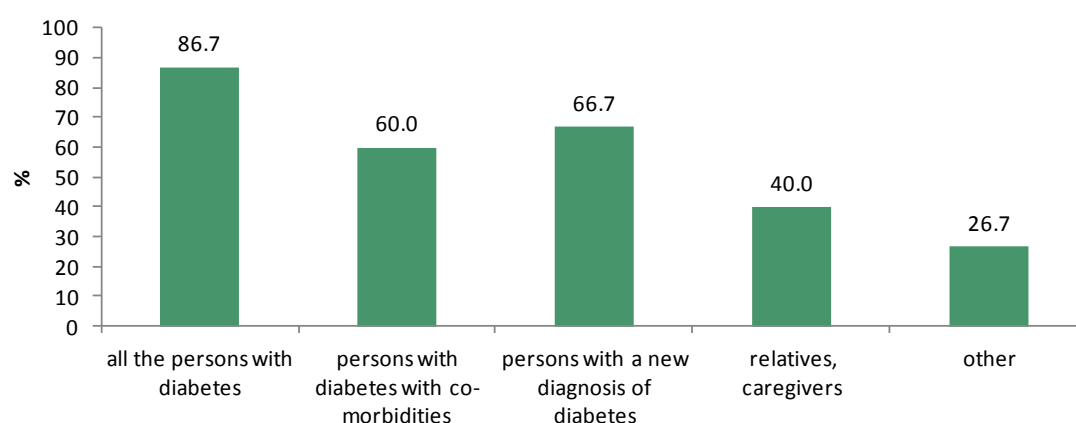


Other: health literacy (France); improved self-efficacy and quality of life, ameliorated empowerment in people with diabetes (Italy); special situations (pregnancy, illness, extensive physical activity) (Romania); functional insulin therapy, diabetes in pregnancy, newly diagnosed type 2 diabetes initiation of insulin therapy in type 2 diabetes (caregivers frequently involved) (Slovenia).

An important issue in education activities is the definition of the specific population to which the activity is targeted. Most countries (86.7%) report that programs address all people with diabetes (Fig. C3). More than a half of the countries report programs addressing people with newly diagnosed diabetes or people with diabetes and co-morbidities.

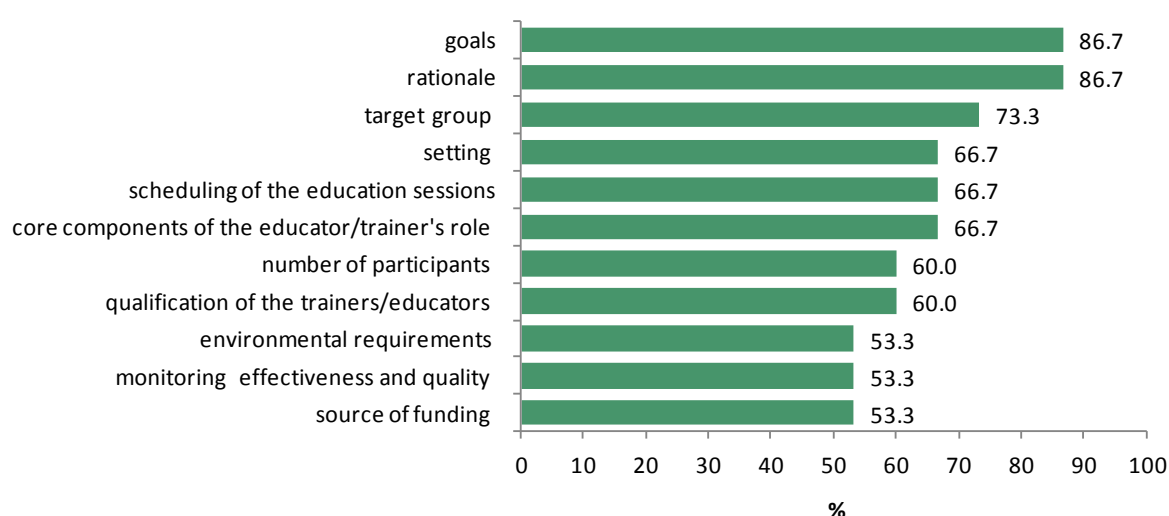
A percentage ranking from 60.0 to 86.7% of the participating countries stated that the goal, the rationale, the target group, the setting, the scheduling of the education sessions, the core components of the educator/trainer role, the qualification of the trainers/educators, and the number of participants are defined in education programs (Fig. C4). About a half stated that environmental requirements, monitoring of effectiveness and quality, and a source of funding is defined in education programs.

Fig C3. Target group



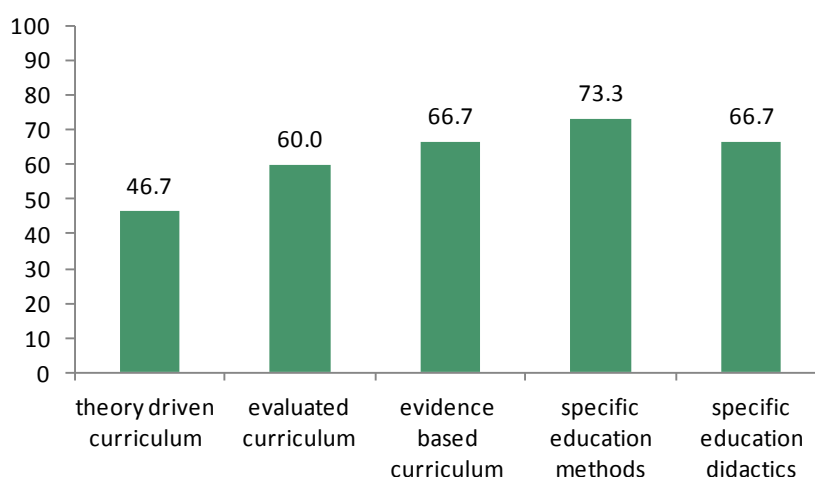
Other: All persons with diabetes enrolled in DMP Therapie Aktiv (Austria). Persons with health insurance, 18 years or older with pharmaceutical therapy and identified GP (France). The target groups are different in different locations (Romania). Pregnant women, newly diagnosed type 2 diabetes with insulin therapy (caregivers frequently involved) (Slovenia).

Fig C4. Defined criteria



About 70% of respondents reported to have a defined specific education methods and didactics, and an evidence based curriculum, 60% reported that the curriculum is evaluated and still less (46.7%) reported that the education program is based on a theory driven curriculum (Fig. C5).

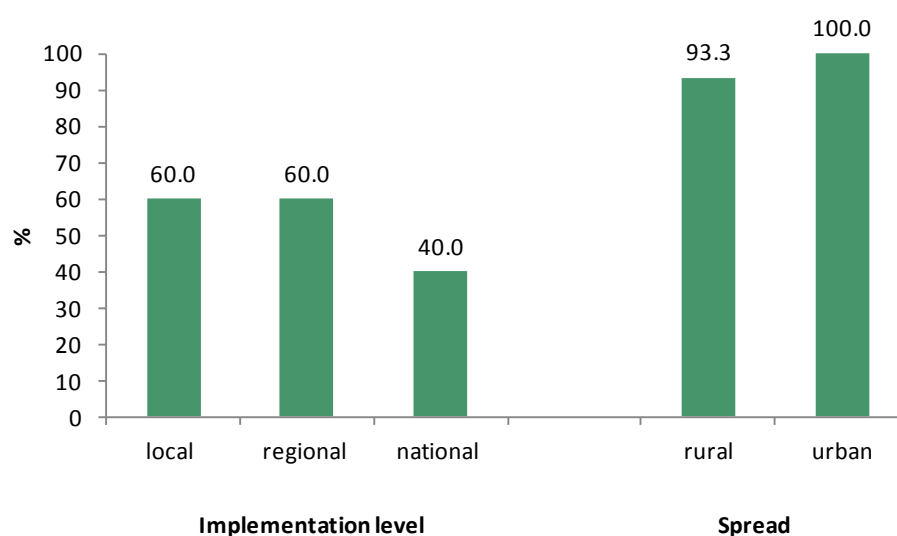
Fig C5. Topics included



More than a half of the education programs (60%) were implemented after the year 2000, and all the implemented programs are reported as currently running. In France, the time frame, 4 years, is given for each program following the licensing process at the regional level.

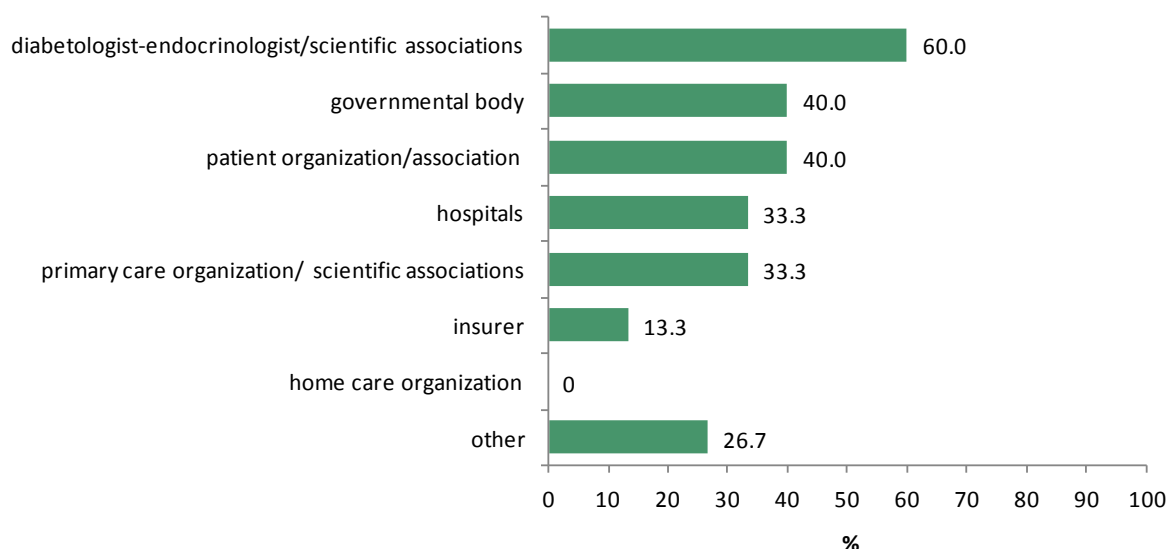
The implementation level of the education programs (Fig. C6) is most frequently reported on regional and local level (60% each), than on national level (40%). All the respondents reported education programs spread on urban level and the 93.3% also on rural level.

Fig C6. Implementation level and spread



The strongest promotor (Fig. C7) seems to be scientific associations of diabetologists-endocrinologists (60%), followed by governmental body and patient organizations/associations (40%).

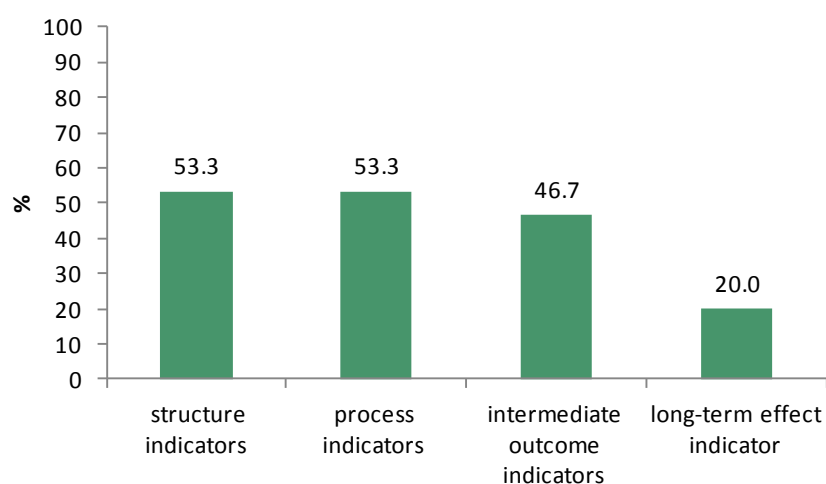
Fig C7. Promoter of the program



Other: Dieticians (Ireland). Multidisciplinary team with pedagogists and diabetologists (Italy). Andalusian School of Public Health (Spain). Registered nurses, educators for diabetes (Slovenia).

Indicators used for monitoring are on structure, process and outcome level. However, only 20% of the participating organizations reported that long-term effect indicators are applied to measure education programs (Fig. C8). It's to notice that some countries don't adopt any kind of indicator (Annex1-Table C1.15).

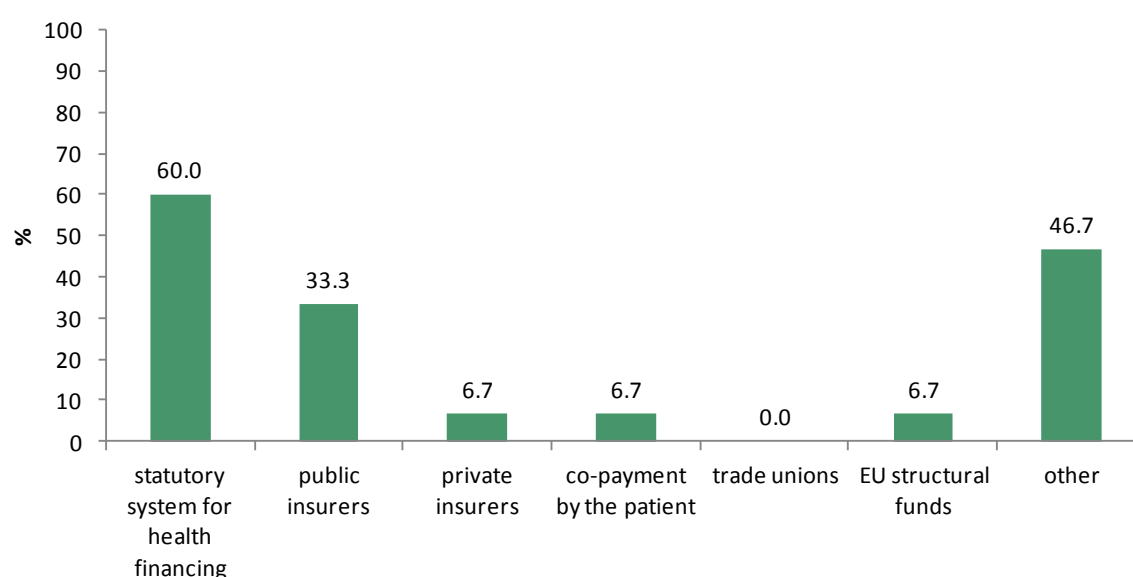
Fig C8. Indicators used for monitoring



Note: Within the program evaluation of the DMP Therapie Aktiv a number of indicators were taken into account, however most indicators are not related to the education program (Austria). The education programme was monitored with continuous evaluation of the clinical and psychological indicator (Italy). Not monitored everywhere or all the time (UK).

Sources of funding for the education program seem to be based on a statutory system for health financing, in 60% of the cases, and on public insurers in 33.3% of the cases (Fig. C9). Other sources are mixed, e.g., statutory system for health financing, public or private insurers and/or private organizations. In Romania, as the profession of therapeutic educator is not officially recognized, the education programs are delivered in different locations with different consistencies and frequency. There is no system of follow up or monitoring the impact of the education programmes. Different clinics use different curricula for these programmes, and there is no official funding for such activities.

Fig C9. Sources of funding for the education programs



Other: Regional differences exist, e.g. the program is co-funded by public insurers and the regional government (Austria). No financing scheme at the national level (France). Unrestricted grant from pharma company (Portugal). The patient education programmes are not funded (Romania). Health Service Executive Ireland (Ireland). Research funding by private organization (EFSD, Compagnia di San Paolo) (Italy). Local healthcare organizations and or pharmaceutical companies (UK).

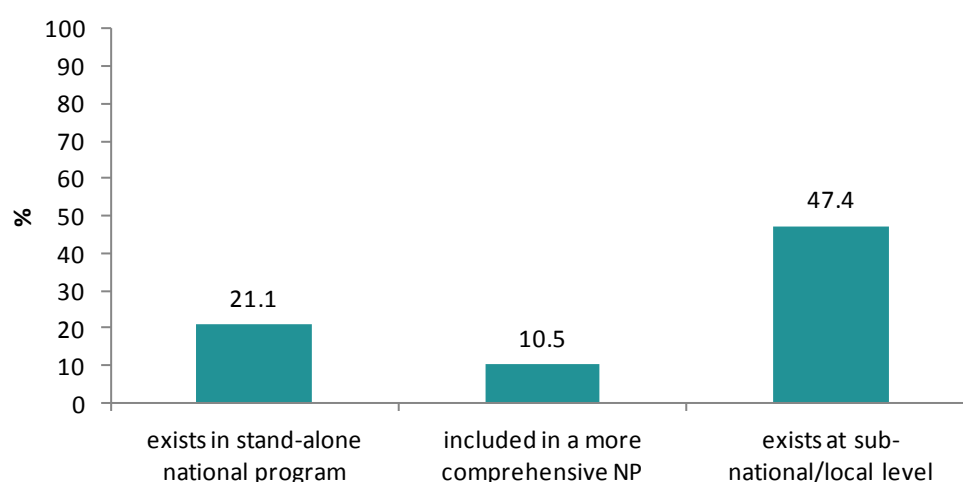
In summary, education programs exist in 8 out of 10 of the participating countries. The core criteria of the quality of education programs are defined, e.g. the goal, the rationale, the target group, the setting, the scheduling of the education sessions. More than a half reported to have an evidence-based curriculum and defined specific education methods and didactics.

However, there are some discussion points. Although, the many quality criteria are defined in education programs, only the 60% reported that the curriculum is evaluated, and a low number of the participating organizations (20%) reported that long-term effect indicators were used. Additionally, the participating countries described which target group is addressed in education programs, e.g. people with diabetes with or without comorbidities, but only 73% reported that the target group is defined in the education program.

Training programs for professionals

Out of the 19 participating countries, only 13 reported to have programs for diabetes that covers health professional training. About half of the participating countries (47.4%) reported to have training programs available at sub national or local level that cover training activities for health professionals (Fig. C10). About 20% reported to have training programs that exist in a stand-alone national program, and in the 10% the program is included in a more comprehensive National Plan.

Fig C10. Percentage of Countries with a program for diabetes that covers health professional training

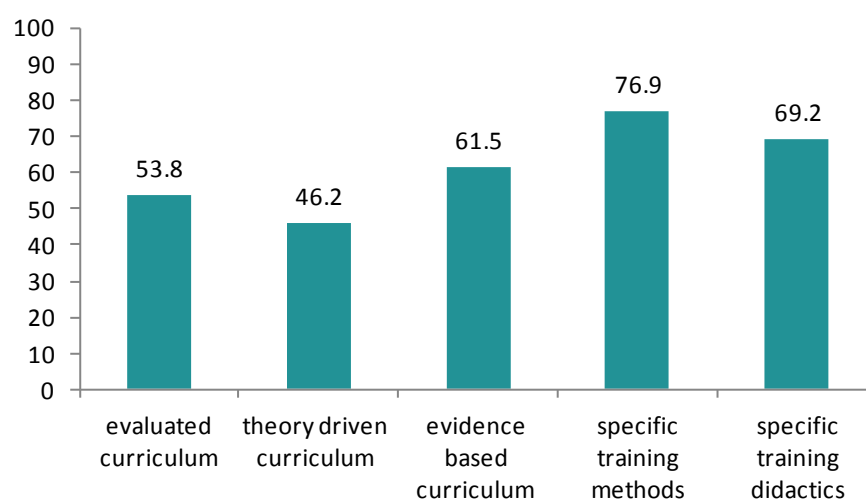


Six countries did not have or did not describe any training program (Annex1-Table C2) and were excluded from the analyses reported in this section.

The majority of the described training programs define the goal, the target group and the scheduling of the training sessions (Fig. C11). About 70% reported that the training programs define the setting, the number of participants, the qualification of the trainers/educators and the core components of their role. Only a few stated that a monitoring of effectiveness and quality is defined (38.5%).

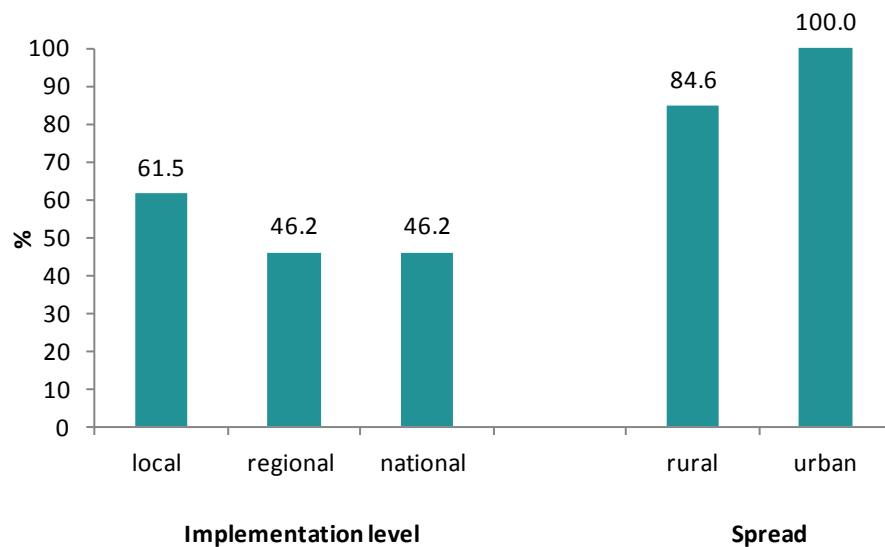
Fig C11. Defined criteria for the training program

The programs contain specific training methods for the 76.9% of the cases, and the 61.5% reported that the programs are based on an evidence based curriculum; only the half reported that the curriculum is evaluated and even less reported that the training program is based on a theory driven curriculum (Fig. C12).

Fig C12. Topics included

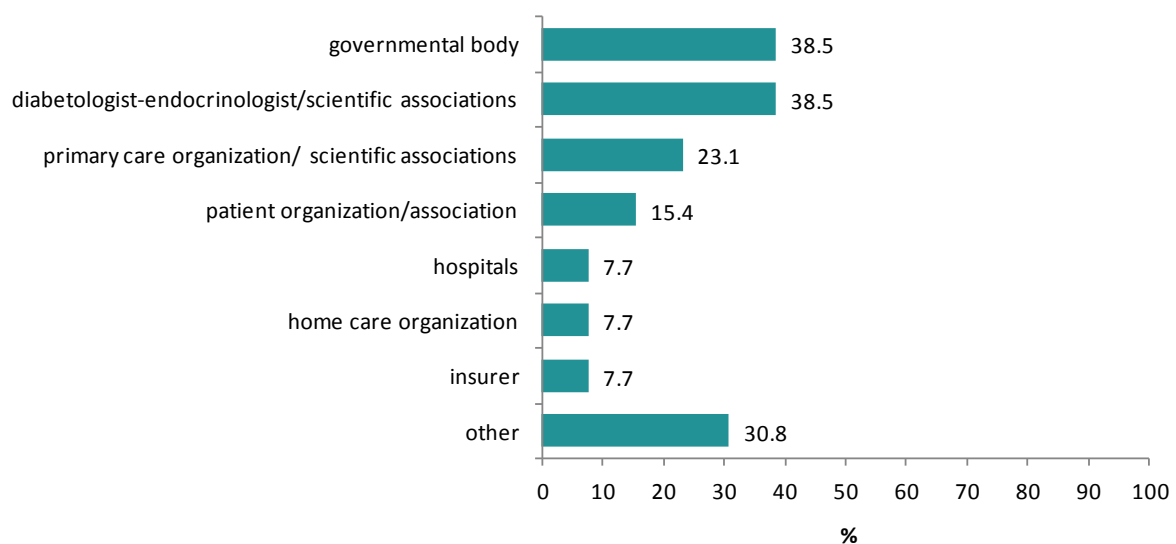
Most of the training programs (75%) were implemented after the year 2005, and all are currently running. The implementation level of the training programs (Fig. C13) is most frequently reported on local level (61.5%), less on regional or national level (46.2%). All the respondents reported training programs spread on urban level and the 84.6% also on rural level.

Fig C13. Implementation level and spread



The programs are more frequently promoted by the scientific associations of diabetologists-endocrinologists and by governmental body (38,5%) (Fig. C14).

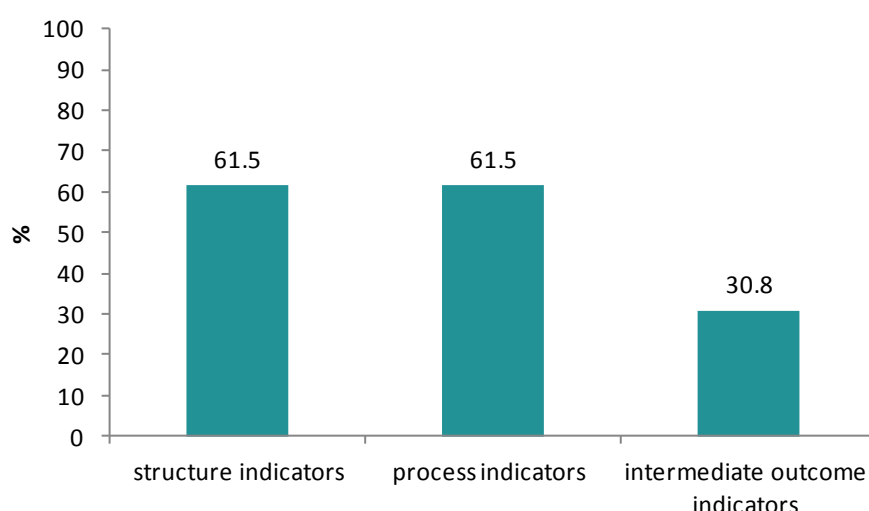
Fig C14. Promoter of the program



Other: Diabetes nurses and diabetologists in cooperation with the university (Austria); academic institutions (Romania); Universities for Applied Sciences (Finland); Academic organisations (UK).

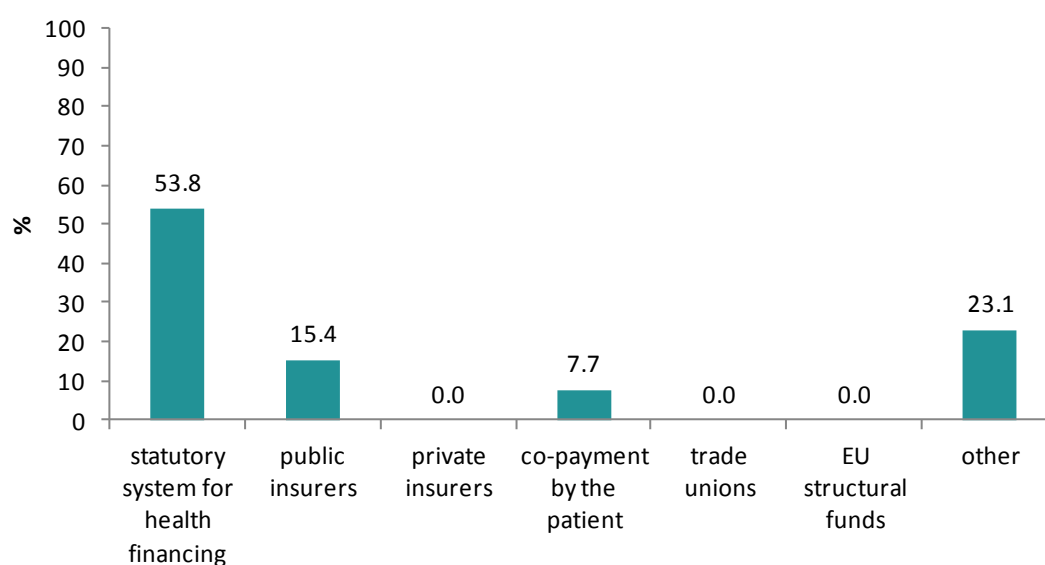
Indicators used for monitoring are on structure and process level (61.5%). Only 30.8% of the participating organizations reported that intermediate outcome indicators are applied to measure training programs (Fig. C15), and some countries do not use any kind of indicator (Annex1-Table C2.15).

Fig C15. Indicators used for monitoring



Sources of funding for the training programs seem to be based mainly on a statutory system for health financing (53.8%) and on public insurers (Fig. C16). Other sources are mixed, e.g., private funding (students), hospitals, pharmaceutical companies. All the respondent countries stated they do not use incentive payment, except one country that use payment for performance (Annex1-Table C2.31).

Fig C16. Sources of funding for the training program



Other: private fundings (students), hospitals, pharmaceutical companies (Austria); educational system (Finland); co-payment by the professionals (Portugal).

In summary, training programs for professionals exist in more than two-third of the participating countries. The core criteria of the quality of training programs seem to be defined, e.g., the goal, the rationale, the target group, the setting, the scheduling of the training sessions. More than a half reported to have an evidence-based curriculum and defined specific training methods and didactics.

However, there are some discussion points. Although, the many quality criteria are defined in training programs, only a low number of the participating organizations reported that a monitoring of effectiveness and quality of the training program is defined. Less than a half reported that the training program is based on a theory driven curriculum and only the 30.8% reported that intermediate outcome indicators are applied to measure training programs.