

# The European Perspective of Diabetes Prevention

## Authors

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## Key words

- Diabetes Prevention Forum
- type 2 diabetes
- prevention
- European Union
- clinical practice
- International Diabetes Federation

## Abstract

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The dramatic increase in newly diagnosed cases of type 2 diabetes is a major public health concern within the European Union. However, it has been demonstrated that prevention programmes can significantly reduce the risk of developing diabetes. There is a clear consensus amongst healthcare professionals that action is urgently needed at both EU and community levels. The challenge is to implement proven intervention methods effectively into clinical reality. To achieve this, action is needed not only in the field of policy development but also

in the development of targeted intervention programmes, which address the needs of people with an increased diabetes risk, clinical- and community-based healthcare professionals, and the general population. The Diabetes Prevention Forum (DPF), founded by the European region of the International Diabetes Federation, consists of European diabetes experts from a range of backgrounds. The DPF is taking immediate action to co-ordinate and improve the information flow between all relevant stakeholders to enable more effective communication, so helping to improve the ability to prevent type 2 diabetes in Europe.

## Diabetes is a major public health concern in the EU

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The dramatic increase in newly diagnosed cases of type 2 diabetes (T2D) has developed into a major public health concern within the European Union [1]. Diabetes and its complications are crucial driving factors for growing health inequalities between the EU member states, particularly in ethnic minorities [2]. Diabetes and impaired glucose tolerance are increasingly appearing amongst younger people with the most rapid increase in the age group below 30–40 years [3,4]. With a growing number of people affected by diabetes in their working age, diabetes results in increasing economic burden to both sufferers and society [5,6]. Data from a recent large meta-analysis show that more than half of the Europeans suffer from hyperglycaemia and/or diabetes during their lifetime [7]. This has resulted in dramatically escalating rates of complications, especially cardiovascular disease, and increased costs due to prolonged and more rigorous medical treatment [8]. Once manifested, diabetes cannot be reversed or cured. So far only pharmacological treatment options are available

to delay the onset of diabetic vascular complications, but they do not necessarily improve the quality of life of the affected persons [9]. Therefore, there remains only one viable alternative to reduce the burden of this growing diabetes epidemic – effective primary prevention [10].

## Risk factors are known

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Type 2 diabetes is a complex metabolic disorder developing in genetically susceptible individuals as a result of environmental and lifestyle risk factors [11,12]. These risk factors are well known: general obesity, central adiposity, physical inactivity and unhealthy diet. Furthermore, psychosocial risk factors clearly increase the diabetes risk [13]. The components of an individual's environment, social situation and the concomitance of mental illness are important environmental predictors [14]. A predominantly sedentary lifestyle and overly rich nutrition combined with steadily increasing workload, professional competition and increased stress [15] as exists in industrialised countries expose people to an array of risk factors for

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non-communicable diseases in general and more specifically diabetes [16]. Thus, it is not surprising that as the age of onset of diabetes continuously drops, the consequences such as heart disease, hypertension, stroke, peripheral vascular disease, renal and eye diseases, neurological and mental problems will also appear earlier [17]. Due to the explosion of associated complications, diabetes is a major cause of morbidity and contributes significantly to premature mortality in all European countries [18].

### Diabetes can be prevented

Several studies have convincingly demonstrated that the prevention of type 2 diabetes through lifestyle modification and/or pharmacological intervention is effective. Lifestyle interventions addressing diet and exercise can reduce the risk of progressing from impaired glucose tolerance (IGT) to diabetes by between 43 and 58% [19]. In comparison, pharmacological treatment (e.g., metformin, acarbose, and orlistat) significantly decreased progression of impaired glucose tolerance to diabetes, but have been shown to be less efficient than lifestyle intervention. Follow-up data from the Finnish Diabetes Prevention Study (DPS) and the Chinese DaQing study [20] demonstrate that the beneficial effects achieved by lifestyle modification are sustainable [21].

### The challenge is effective implementation

The findings from clinical trials offer the evidence base for the development of community-based prevention strategies [22]. The implementation of diabetes prevention programmes in clinical practice is crucial for a successful T2D prevention [10]. The implementation process requires not only medical and healthcare interventions but also financial, legal, and infrastructural prerequisites [19]. Finland was the first country to implement a nationwide programme for the prevention of Type 2 Diabetes (FIN-D2D) [23]. The programme's concept was based on findings from the Finnish Diabetes Prevention Study [24]. The United States have modified the Finnish Diabetes Prevention concept for community delivery purposes [25]. More recently, Germany joined the process by introducing the first prevention management campaign in Saxony in 2007 [10]. From these experiences, it is of utmost importance and critical for the successful implementation of any prevention programme that it addresses people at T2D risk through widespread accessibility to the general population.

### Joint action and political support is needed

A clear consensus amongst healthcare professionals is that immediate action is needed at EU level to develop targeted community-level prevention management programmes for type 2 diabetes. This requires improved knowledge regarding development and implementation of public health strategies to prevent diabetes at a national, regional, and community level.

The existence of a national diabetes framework indicates political action and interest [26]. The importance of national plans was first recognised in 1989, when most of the countries that were involved in this audit, signed the St Vincent Declaration. Under the auspices of WHO, they committed themselves to

multiple initiatives to combat diabetes. Unfortunately, many of the countries involved in this work twenty years ago have failed to fulfil the key requirements stipulated by the Declaration. Subsequent Declarations by the EU's Council of Ministers [27] and Members of the European Parliament [28] continue to reinforce the importance of national diabetes plans and raise the critical question of why there has been so little progress to date. Furthermore, diabetes was chosen as a main health topic during the Austrian EU Presidency in 2006. This was addressed by an EU Conference on Prevention of Type 2 Diabetes [29] where experts declared that the diabetes epidemic can only be counteracted in a coordinated and trans- or multi-disciplinary fashion.

In December 2006, another milestone was set by the UN Declaration acknowledging that diabetes remains one of the largest threats to worldwide health along with HIV and malaria [30]. This was followed by the so called "White Paper" issued by the European Commission in 2007 outlining a European strategy to reduce ill health as a consequence of poor nutrition [31]. This strategy defines the action steps that need to be realised at community level and in a cooperative manner if prevention strategies are to be effective. It is based on recent initiatives of the Commission designed to trigger debates on obesity prevention, such as the Green Paper [32] entitled "Promoting healthy diets and physical activity: A European dimension for the prevention of overweight, obesity and chronic diseases". The primary objective of both these papers is to encourage the adoption of best practices throughout Europe.

### Immediate action is needed

Policy development in the fields of consumer protection and behaviour, nutrition, sport, education, and transport are the key issues in the implementation process. These policies need to account for the socio-economic dimension of the problem including disadvantaged and minority groups. Based on these policies the next step is to develop primary prevention programmes targeting the needs of healthcare professionals' clinical practice and their local community. This entails the development of adequate programme tools for health care professionals offering intervention as well as relevant materials and tools for the target population. This material should be standardised and applicable throughout Europe, which will help to increase the impact on national health policies.

### What steps are needed?

The implementation process needs to involve the different levels of "health care provision" from health politics and policy making through to health care providers and also through to the general public. To reflect this dynamic, the following steps are proposed.

#### 1. Development of a European Action Plan – Diabetes Prevention

The action plan should identify essential activities and available resources for diabetes prevention and spell out the responsibilities of each stakeholder and their involvement. In addition, the plan should recommend and outline action steps specific to each involved cohort – (e.g., families, friends, health care providers,

the media, health insurance providers, employers, researchers, professional educators, ethnic and cultural groups to name but a few).

## 2. Development of a European Diabetes Prevention Technical Management Handbook

A management handbook will provide strategic examples and recommendations for the implementation of a programme thereby accounting for different health care and social systems. Furthermore, it should elaborate on the current scientific evidence of diabetes prevention and provide concepts for a European risk detection strategy, an intervention structure and quality management. The handbook should function as a guide for policy makers and further policy development.

## 3. European Practice-oriented Guidelines for Prevention of Type 2 Diabetes

To master this challenge the development of European standards in diabetes prevention is a basic necessity and precondition for further action in this field. This is achieved by improving information and knowledge for the performance and management of diabetes prevention programmes in all European countries in one practice oriented guideline. This guideline will

- ▶ address strategies of the early risk detection, intervention and continuous follow up in all participating European countries
- ▶ address health determinants responsible for the increased diabetes risk and
- ▶ include standards for the intervention quality and the implementation of quality assurance for diabetes prevention.

## 4. A European Curriculum for the Training of Prevention Managers

The existence and accessibility of adequate education programmes for health care professionals to deliver prevention support and guidance is key in the implementation process and should be delivered through a standardised training curriculum. The training curriculum should set learning targets with specific focus on nutrition, physical activity, social background and motivation/self empowerment. Furthermore, it needs to include a stepwise approach which takes differing socio-economic and professional backgrounds into account.

## 5. Development of a European Diabetes Prevention Manual

In contrast to the management handbook, a European Diabetes Prevention Manual should be developed in textbook style to be used as a self-management tool for the target audiences. It should provide the necessary scientific background on disease risk and elaborate on strategies of risk reduction exemplified by real life situations. It can also be used in structured intervention programmes as self-use intervention material, which will enable health-care workers in different parts of Europe to give life-style counselling in the same structured and standardised way. Two European funded Projects DE-PLAN [33] and IMAGE [34] have been addressing the implementation process. This is being achieved through the development of intervention structures, European training standards for healthcare professionals, and the adaptation of these structures to reflect national and local circumstances. Nevertheless, EU-wide intervention strategies are still lacking. To achieve the next level of action it is necessary

to develop an organisation, which can assist and coordinate the whole process effectively across Europe.

## The Diabetes Prevention Forum takes action



The Diabetes Prevention Forum (DPF) was founded by the European region of the International Diabetes Federation (IDF) aiming to raise awareness for diabetes prevention across Europe. The DPF consists of European diabetes experts including health-care professionals, representatives from patient associations and health politics. The Forum networks with other European initiatives targeting diabetes prevention including the IMAGE project [34], SWEET project, DIAMAP, and DE-PLAN [33]. The DPF provides the coordination and organisation to enable more effective communication between all stakeholders thereby facilitating information flow and sustainable diabetes prevention information and activities at a European level.

## Conclusion



The effective primary prevention of diabetes is the only way to reduce the personal and socio-economic burden of diabetes and its complications. In the first instance, greater awareness amongst the general population is urgently required. Alongside this, a more concerted and coordinated approach must be taken by healthcare professionals. The scientific evidence is compelling supporting primary prevention of diabetes by life-style intervention and translations of well conducted study strategies into national prevention programmes. The challenge now is to implement clinically proven intervention methods with maintained effectiveness into primary health care system where resources are often scarce. This may only be achieved by an integrated, international approach – diabetes knows no borders.

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\* The Diabetes Prevention Forum members include:

- ▶ Michael Hall, UK, IDF Europe (Chair)
- ▶ Lex Herrebrugh, Belgium, Regional Manager, IDF Europe
- ▶ Mary Banotti, Ireland, former MEP, EU Diabetes Working Group
- ▶ Frédérique Duval, France, Association Française des Diabétiques
- ▶ Anne-Marie Felton, UK, Federation of European Nurses in Diabetes; Vice-President IDF
- ▶ Liisa Hiltunen, Finland, Finnish Diabetes Association
- ▶ Aldo Maldonato, Italy, Committee for Therapeutic Education (ComET)
- ▶ Frederik Muylle, Belgium, Flemish Diabetes Association
- ▶ João Nabais, Portugal, IDF Europe
- ▶ Peter Schwarz, Germany, Carl Gustav Carus Medical Faculty, Dresden
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Further information about the DPF is available at [www.diabetespreventionforum.org](http://www.diabetespreventionforum.org)

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