

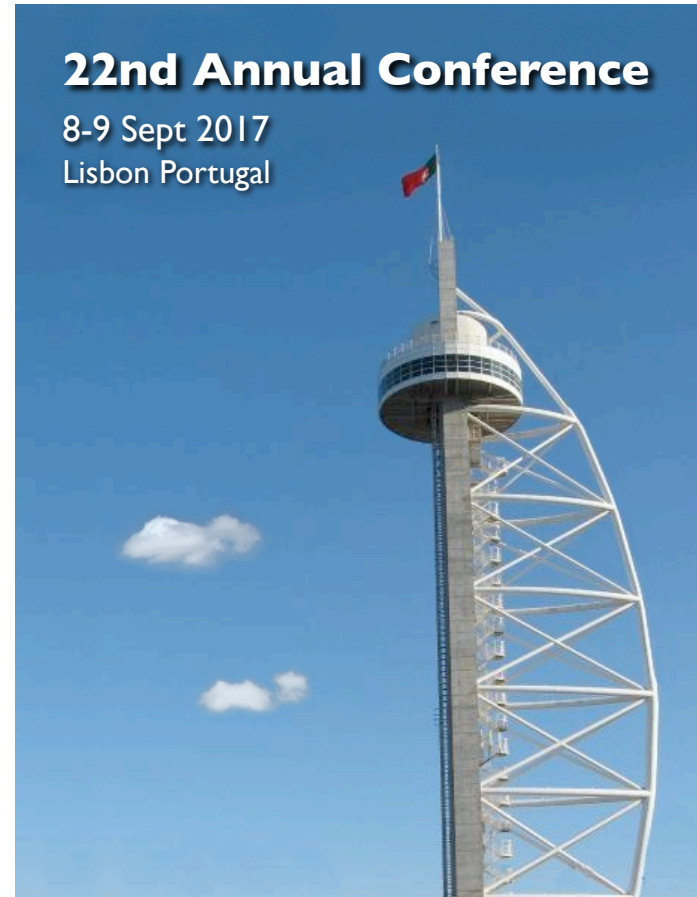
# F E N D

Foundation of European Nurses in Diabetes

## **22nd Annual Conference**

8-9 Sept 2017

Lisbon Portugal



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**CONFERENCE WEBCASTS**

Please note that the keynote presentations will be available to view on the FEND website shortly after the conference. (slides plus presenter video).

Therefore you are courteously requested not to take photos or recordings of presentations.



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## FEND Mission Statement

The objects for which FEND is established are:

- To promote for the public benefit improvements in the health and treatment of sufferers from diabetes by the development and promotion of the role of the diabetes nurse specialist throughout Europe.
- To promote for the public benefit the education and training of nurses working in diabetes care throughout Europe, by the development and support of training programmes, including the organisation of conferences and symposia, to further such programmes and the dissemination of information relating to the proceedings at such conferences or symposia.

## Welcome

Dear Participants

On behalf of the Executive committee of FEND it is our pleasure to welcome you most warmly to the FEND 22nd Annual Conference and the city of Lisbon.

The conference reflects the complexities and continuing challenges of the diabetes epidemic in Europe. The patient experience is well represented and reflected in this year's programme and marks the significant contribution that people with diabetes make in influencing the provision of care and the characteristics of care. The patient narrative will be of profound interest to all.

FEND continues to play an active role in advocacy, policy development and implementation. To this end as a member of European Coalition on Diabetes (ECD) we are engaged with EU Parliamentarians and also national parliamentarians through the Global Network of Parliamentary Champions.

The establishment of the specialty of diabetes nursing is not fully realised in all the countries of Europe. To meet this challenge FEND continues to provide an academically accredited MSc programme led by Prof Angus Forbes, FEND Professor in diabetes nursing, research and education. The FEND Doctoral Fellowships which were created three years ago have been hugely successful with three new ones starting this year. These programmes are available to all members of FEND and it is noteworthy that the cost of these unique programmes is funded by FEND.

FEND continues to work with key pan-European organisations within the European Coalition on Diabetes (ECD) comprising EURADIA, FEND, IDF Europe and PCDE. FEND also engages with OECD and WHO.

We thank our distinguished international speakers for their commitment and generosity of time. We thank Prof Juleen Zierath, President EASD for her courtesy and support in permitting this conference to be included in the programme of meetings on the occasion of 53rd Annual Meeting of EASD.

We acknowledge with deep appreciation the continuing support of our key sponsors for all of FEND's activities.

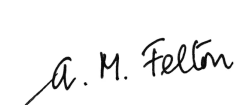
Your attendance at this conference represents diabetes nursing from Europe and beyond – a truly international gathering and evidence of the commitment of the nursing profession to people with diabetes.

We thank you for your presence and active participation – the conference is now in your hands.

Kristin de Backer  
FEND Chairman



Anne-Marie Felton  
FEND President



Friday 8 September 2017			
0730	Registration		
0845	Welcome and Opening Remarks	<i>FEND Chairman</i> Kristin de Backer <i>FEND President</i> Anne-Marie Felton	
		<i>Session Chairs</i> Prof Regina Wredling Kristin de Backer	
0900	<b>Welcome Message from EASD</b>	Prof John Nolan	
0915	<b>Getting the Diagnosis Right</b>	Prof Anne Dornhorst	
0945	<b>Benefits Of Flu Vaccination For Patients With Diabetes Mellitus: A Review</b>	Prof Albert Osterhaus	
1015	<b>Type 1 Diabetes Women's Views About Preconception Care: A Qualitative Study</b>	Ana Cristina Paiva	
1045	Refreshments & Exhibition		
		<i>Session Chairs</i> Dr Natalia Piana Chris Delicata	
1115	<b>Patient Narrative:</b>	Katarina Braune	
1145	<b>Patient Narrative:</b>	Prof Joao Nabais	
1215	<b>Patient Narrative:</b>	Emma Matthews	
1245	Lunch & Exhibition		
		<i>Session Chairs</i> Prof Seyda Ozcan Dr Anne-Marie Wangel	
1400	<b>Ethical Implications of Health Research</b>	Adj Prof Arja Halkoaho	
1430	<b>StopDia Study: Prevention of Type 2 Diabetes</b>	Dr Tanja Tilles-Tirkkonen	
1500	<b>The Impact of Lipohypertrophy on Glucose Variability and its Clinical Implications</b>	Prof Angus Forbes	
1530	Refreshments & Exhibition		
		<i>Session Chairs</i> Deirdre Kyne-Grzebalski Ana Cristina Paiva	
1615	<b>Hypoglycemia Prevention &amp; Unawareness</b>	Helen Rogers	
1645	<b>A Portrait of: Irish National Diabetes Nurses &amp; Midwives Association</b>	Deirdre Gleeson	
1930 2000	<b>Pre Dinner Cocktails Conference Dinner</b> Restaurant Estufa Real, (Botanical gardens) Calçada do Galvão, 1400-171 Lisbon		

Saturday 9 September 2017			
		<i>Session Chairs</i> Adj Prof Arja Halkoaho Dr Rita Forde	
0830	<b>The Honeymoon Phase Dilemmas in Adults with T1D</b>	Dr Mette Due Christensen	
0900	<b>Diabetes and Brain Health</b>	Dr Catherine Dolan	
0930	<b>Depression: a Common and Burdensome Complication of Diabetes</b>	Prof Frank Snoek	
1000	<b>Dementia and Cognitive Dysfunction: Newly Emerging High Impact Complications of Diabetes</b>	Prof Alan Sinclair	
1030	Refreshments & Exhibition		
		<i>Session Chairs</i> Dr Magdalena Annersten-Gershter Simon O'Neil	
1100	<b>Diabetic Neuropathies</b>	Prof Andrew Boulton	
1130	<b>The Unique Features of T2 Diabetes in Children and Adolescents</b>	Prof Wieland Kiess	
1200	<b>Colliding Landscapes: What Shapes a Clinical Consultation</b>	Dr Rita Forde	
1230	<b>Oral Presentations: 1 (see p.25) 2 (see p.27) 16 (see p.42)</b>	Dr Davide Ausili Dr Marjolein Iversen Mercè Vidal	
1315	Lunch & Exhibition		
		<i>Session Chair</i> Linda Horsted Raimond	
1415	<b>Masterclass: Patient Generated Apps and Websites</b>	Peter Lucas Bastian Hauck	
<i>parallel</i>	<b>Guided Poster Tour</b>	<i>facilitators: Deirdre Kyne-Grzebalski Dr Mette Due-Christensen</i>	
1500	Refreshments & Exhibition		
1530	<b>Masterclass (repeat): Patient Generated Apps and Websites</b>	Peter Lucas Bastian Hauck	
<i>parallel</i>	<b>Guided Poster Tour (repeat)</b>	<i>facilitators: Deirdre Kyne-Grzebalski Dr Mette Due-Christensen</i>	
		<i>Session Chairs</i> Debbie Jones	
1615	<b>Disruptive Innovation</b>	Anne-Marie Felton	
1630	<b>FEND Award Ceremony &amp; Closing Remarks</b>	Kristin de Backer	

## GETTING THE DIAGNOSIS RIGHT

**Prof Anne Dornhorst**

Consultant Physician and Professor of Practice at Imperial College London

Today in the West most healthcare professionals believe the majority of cases of diabetes fall into three broad etiopathogenetic categories we term Type 1 Diabetes, Type 2 Diabetes or Gestational Diabetes, each with its own distinct phenotype and clinical presentation. However clinically, diabetes is a very heterogeneous condition with multiple aetiologies, a multitude of different clinical presentations and different natural histories.

The importance of assigning the correct diagnostic classification of diabetes to a patient is essential, not only for selecting the right management plan but for providing the correct patient education.

In this lecture I will explore how the use of more readily available laboratory blood tests and from the knowledge gained from the rapid advances in genetic sequencing should make us all ask ourselves when seeing a patient “what sort of diabetes has this patient really got?”

## BENEFITS OF FLU VACCINATION FOR PATIENTS WITH DIABETES MELLITUS: A REVIEW\*

**Prof Albert Osterhaus<sup>1,2</sup> and M.Goeijenbier<sup>2,3</sup>**

<sup>1</sup> European Scientific Working Group on Influenza (ESWI)

<sup>2</sup> Research Institute for Emerging Infections and Zoonoses, Veterinary University Hannover, Germany

<sup>3</sup> Erasmus Medical Center, Rotterdam, The Netherlands

Diabetes mellitus (DM) imposes a significant and increasing burden on society, with major consequences for human health, welfare and the economy worldwide. DM patients are at increased risk of developing severe complications after influenza infection and should therefore be protected by vaccination. The present evidence for influenza vaccine effectiveness in DM patients is mainly based on observational studies with clinical (not laboratory confirmed) endpoints like hospitalization and death, indicating a beneficial reduction of morbidity and mortality. Further supportive evidence comes from serological studies, where DM patients usually develop similar antibody levels after vaccination than healthy people. Observational studies may be prone to selection bias, and serological studies may not completely mirror vaccine effectiveness in the field. Although more controlled trials in DM patients with laboratory-confirmed, influenza-specific outcomes would be desirable to better estimate the effect size of vaccination, the currently available data justify routine influenza vaccination in DM patients. As in this risk group, the use of influenza vaccine is far below target worldwide, efforts should aim at increasing vaccination coverage.

\*Goeijenbier M. et al., Vaccine in press

## TYPE 1 DIABETES: WOMEN'S VIEWS ABOUT PRECONCEPTION CARE – A QUALITATIVE STUDY

**Ana Cristina Paiva<sup>1</sup>, João Raposo<sup>1</sup>, Angus Forbes<sup>2</sup>**

<sup>1</sup> Portuguese Diabetes Association APDP-ERC Portugal

<sup>2</sup> Florence Nightingale Faculty of Nursing and Midwifery, King's College of London, UK

Perceiving type 1 diabetes women's views about preconception care with an interpretative phenomenological analysis.

### Background

Pregnancy in women with Type 1 diabetes mellitus (T1DM) is associated with increased complications for both baby and mother; such complications can be reduced with careful pregnancy planning. Preconception care (PCC) enhances pregnancy outcomes by helping women to optimise their glycaemic control, through supportive intervention. However, despite these benefits the uptake and adherence to PCC is low. This qualitative study aimed to generate a better understanding as to why women may not utilise PCC, by eliciting the views and experiences of women with T1DM in relation to preconception care.

### Methods/Sample

A sample of six women of reproductive age with T1DM undertook semi-structured interviews exploring their views on PCC. These interviews were tape-recorded, transcribed (verbatim) and analysed using interpretative phenomenological analysis (IPA) to elicit themes that explicated the women's orientation and behaviour in relation to PCC.

### Results

The analysis identified five key themes: the fear of complications (both for the mother and baby); the style of communication from health care professionals (HCPs); the support of significant other's; personal autonomy; and women's beliefs about PCC.

### Conclusion

Overall the findings suggest that women's uptake of and engagement with PCC is enhanced when HCPs adopt a supportive and positive approach, which addresses their anxieties in pregnancy preparation and encourages the health behaviours necessary for a good outcome for their baby.

Keywords: Type 1 diabetes, Women's view, Preconception care, Pregnancy outcomes

## ETHICAL IMPLICATIONS OF HEALTH RESEARCH

### Dr Arja Halkoaho

Development manager in research, Kuopio University Hospital, Finland

Ethics on research can be seen as a reflection of moral principles based on the historical perspective and aimed towards the future. Most ethical theories and traditional codes for nurses and doctors presuppose that there are ethical principles and values. The best known principles of bioethics are 1) the respect of autonomy, 2) the principles of beneficence, 3) non-maleficence and 4) justice formulated by Beauchamp & Childress already in 1989.

Autonomy, including informed consent, has been adopted as a central concept in biomedical ethics. In research, the principle of autonomy can be assessed through the process of free and informed consent. Informed consent to research comprises of three elements: *Relevant information* is provided to a person who is *competent to make a decision* and who is acting *voluntarily*.

Although medical practice is expected to confer a health benefit for the patient, the nature of the research means there is uncertainty about whether the participants will actually benefit from research participation and these kinds of benefits are not the main purpose of the research. It is also important that research participant understands the difference between research and care, the so-called therapeutic misconception. In research justice cannot be viewed only as the protection of participants. We should recognize also the power relationships within the research process.

In my presentation I will address ethical issues in clinical research from the point of view of research participants. These are issues which aspects every stakeholder should recognize and promote good ethical clinical practice in research.

## STOPDIA STUDY: PREVENTION OF TYPE 2 DIABETES

### Dr Tanja Tilles-Tirkkonen

Researcher and coordinator of the StopDia – research project  
University of Eastern Finland, Department of Public Health and Clinical Nutrition

The StopDia study develops and tests approaches to empower individuals in adopting and maintaining healthy lifestyle to reduce the risk of type 2 diabetes (T2D). The StopDia study provides added value beyond previous research in five steps:

- 1) by improving identification of individuals at risk of T2D,
- 2) by increasing motivation and capability to lifestyle changes,
- 3) by improving adherence to healthy lifestyle,
- 4) by modifying living environment to support healthy lifestyle and
- 5) by supporting societal decision-making.

To achieve this, we combine individual and environment level strategies into a dual-process approach targeting both conscious, deliberative and non-conscious, automatic processes of behaviour to help individuals at increased risk of T2D in the adoption of healthier lifestyle. We test the effectiveness of individual intervention in changing lifestyle and improving glucose tolerance in a one-year randomized controlled lifestyle intervention. The participants with increased risk of T2D are randomized into three groups receiving either digital coaching application, combined digital and face-to-face group coaching, or usual care.

In an environmental level intervention, we design choice architecture strategies to be implemented at workplaces to support everyday healthy lifestyle. We assess the potential synergistic effects of individual and environmental level interventions among the participants working in these working environments. In addition, we study barriers and facilitators of adopting healthy lifestyle in the society, as well as develop methods to monitor cost-effectiveness of these actions. The ultimate goal of the StopDia study is to create a model for early prevention of T2D by joint actions of health care and key governmental and non-governmental organizations.

## **LIPOHYPERTROPHY – A NEW PROBLEM IN NEED OF NEW SOLUTIONS**

**Prof Angus Forbes**

FEND Chair of Diabetes Nursing at King's College London

People with T1DM need to take subcutaneous insulin injections to control their blood glucose levels. Most people with T1DM follow either a multiple daily injection (MDI) regimen requiring four or more injections per day, or use continuous subcutaneous insulin infusion (CSII) devices (insulin pumps). Hence, people with T1DM are exposed to high levels of subcutaneous insulin.

A potential consequence of this exposure is the development of Lipohypertrophy(LH). While some degree of LH is probably inevitable with insulin exposure, it becomes clinically problematic when it is associated with excess glucose variability, hypoglycaemia and poor glycaemic control.

The risks for developing problematic LH are multifactorial and are accumulative. Patient behaviours and insulin delivery systems have all been considered as risk factors, key factors include: lack of site rotation; needle reuse; duration of insulin use; injection frequency; low education level; lower socio-economic status; incorrect injection technique; younger age; female gender; lower BMI; and needle length. LH is a significant problem that has been widely under-reported and is associated with poor glycaemic control and increased diabetes distress; and it is important to develop better clinical management to prevent and compensate for LH.

This talk will outline the scale of the problem and its clinical impact and show how using novel techniques such as ultrasound may help diabetes health professionals detect and manage the problem.

## **HYPOGLYCEMIA PREVENTION & UNAWARENESS**

**Helen Rogers**

Nurse Consultant in Diabetes, working at King's College Hospital, London

Having Impaired awareness of hypoglycaemia (IAH) leads to a 6-fold increased risk of a person with type 1 experiencing an episode of severe hypoglycaemia. Nobody wishes to experience severe hypoglycaemia - so wouldn't it be good to prevent IAH from occurring in the first place? Let us discuss ways in which people with type 1 diabetes can prevent it.

We know from the research carried out at King's and other groups, that Impaired Awareness of Hypoglycaemia (IAH) can be restored by rigorous avoidance of hypoglycaemia for a period. We also know that education plays a part in the restoration; the DAFNE (Dose Adjustment for Normal Eating) audit demonstrated that. However, there remain those for whom IAH is more problematic and for whom maybe a new paradigm of education is needed.

Because there was no existing research into what the people with IAH were thinking and experiencing, I set out to investigate some of their experiences, thoughts, and behaviour using Grounded Theory as the research methodology. The theory that arose from this research, postulated that many people with IAH have ways of thinking that perpetuate the vicious cycle of IAH and severe hypoglycaemia.

Let us discuss how we can deal with this new knowledge. Pilot research shows that there is merit in talking openly with people with IAH about the common thinking traps and give them the tools to come up with some new ways of thinking. These new ways of thinking should enable new ways of behaving, and these behaviours should eliminate the IAH and the resulting severe hypoglycaemia.

## THE HONEYMOON PHASE DILEMMAS IN ADULTS WITH TYPE 1 DIABETES

**Dr Mette Due-Christensen**

FEND Doctoral Fellow

The honeymoon period refers to the period following a diagnosis of Type 1 diabetes with no set beginning or end with some residual endogenous insulin production to help stabilise the blood glucose. The course of this period varies considerably between individuals and is considered a time when management of diabetes is easier for the person living with diabetes. However, little is known about how people with Type 1 diabetes experience this period of time.

To address this, we explored the personal perception of the honeymoon period in adults with new onset Type 1 diabetes. Qualitative semi-structured longitudinal interviews were conducted with 30 adults (range 20-67 years) diagnosed within the last three years (median diabetes duration 23.5 months) and recruited from hospitals in Denmark and the UK. A narrative approach was used for analysis.

Although adults newly diagnosed with Type 1 diabetes were informed about the benefits of the honeymoon period in relation to insulin management, they felt frustrated by the unpredictability of its onset and duration. While insulin management might be simpler during the honeymoon, concerns about what would happen in relation to management of diabetes following this period were common and burdensome. However, these concerns were not usually addressed by the healthcare professionals. The emotional impact of the honeymoon period is often not considered. In order to attend to individual concerns the emotional impact needs to be addressed repeatedly with adults newly diagnosed with Type 1 diabetes..

## DIABETES AND BRAIN HEALTH

**Dr Catherine Dolan**

Clinical Lecturer and Senior Registrar in Psychiatry in Trinity College Dublin and St. James' Hospital, Dublin

Catherine's address will focus on the potential burden of diabetes brain health complications in a rapidly ageing European population. It will emphasise the importance of development and implementation of primary and secondary preventative measures at a population level to minimise the impact of brain health complications on individuals with diabetes, as well as reduce health resource utilisation.

Development of educational interventions to improve awareness of diabetes brain health complications among health professionals working in the area of diabetes care will be discussed. Results of the Irish Diabetes Brain Health Survey, which aimed to establish current knowledge levels of brain health related complications of diabetes among the general public, and individuals with diabetes, will be outlined.

[contd...]

Additionally the benefits of promotion of population based screening programmes to improve early detection and intervention for complications of diabetes, such as depression and cognitive impairment, will also be considered. Diagnostic difficulties inherent in diagnosis of brain health complications among individuals with chronic medical illness such as diabetes, will be explored and the burden of metabolic conditions, such as diabetes, in individuals with primary mental illness will also be touched upon.

## DEPRESSION: A COMMON AND BURDENSOME COMPLICATION OF DIABETES

**Prof Frank Snoek**

Department of Medical Psychology VU University Medical Center (VUMC) and Academic Medical Amsterdam (AMC), The Netherlands

In this presentation, I will review the scope of the problem and clinical solutions with respect to depression in diabetes, with a view on the role of the DNS.

Living with and managing diabetes can be stressful for the person with diabetes (PwD) as well as his/her significant others. Emotional distress, encompassing a broad range of negative emotions, is common among PwD, affecting roughly 30% of the patient population. In recent years the focus in research has been on depression, that has been shown to be twice as common in PwD compared to the general population.

There is evidence to suggest that depression is also more recurrent in PwD. Depression comes at high costs, both for the individual and the society. PwD with co-morbid depression overall experience greater difficulty to self-manage their diabetes, have poorer glycaemic control, an increased risk of complications and excess mortality. Medical costs of PwD and depression are significantly higher than for those without depression. Unfortunately, depression is often missed by diabetes professionals and undertreated. International clinical guidelines promote screening and monitoring of wellbeing as part of routine care and close collaboration with psychologists, preferably as members of the diabetes care team.

A collaborative care model is needed to address the combined needs of people with diabetes and comorbid depression and shown to be feasible and effective in primary care. Both pharmacological and psychotherapeutic interventions can help to alleviate symptoms of depression, but impact on glycaemic control is limited. In view of the large number of PwD affected by depression and limited resources, internet-based (self-help) depression programs have been developed, showing promising results. Future directions for optimizing depression treatment in PwD will be discussed.



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## **DEMENTIA AND COGNITIVE DYSFUNCTION: NEWLY EMERGING HIGH IMPACT COMPLICATIONS OF DIABETES**

### **Prof Alan Sinclair**

Director of the Foundation for Diabetes Research in Older People at Diabetes Frail Ltd in Bedfordshire, England

Hon Professor of Metabolic Medicine at Aston University and honorary Professor of Diabetes at the Heart of England NHS Foundation Trust, Birmingham

Diabetes is a risk factor for the development of dementia of both vascular as well as neurodegenerative aetiology. Type 2 diabetes is associated with approximately a 1.5- to 2.5-fold increase in the risk of dementia and changes in memory and verbal fluency are often present after 10 years of diabetes. Poor cognitive performance is also associated with hyperglycaemia. The pathophysiological platform for these changes is still being explored although diabetes appears to accelerate brain ageing.

Cognitive dysfunction can lead to a lack of ability to diabetes self-management, an increase in the risk of hypoglycaemia, and the need for carer assistance. Intensive glucose control may have mixed benefits by improving cognitive function on the one hand but increasing the risk of hypoglycaemia on the other. No additional benefits appear to arise from any specific glucose-lowering therapy.

Health professionals involved in direct diabetes care need to be alert to the early signs of memory loss and changes in personality and arrange cognitive assessment. Referral to specialists should be considered where appropriate.

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## **DIABETIC NEUROPATHY**

### **Prof Andrew JM Boulton**

Consultant Physician, Manchester Royal Infirmary,

Professor of Medicine, Universities of Manchester, UK and Miami, FL, USA

The diabetic neuropathies are common and chronic sensorimotor diabetic peripheral neuropathy (DPN) affects up to 50% of older type 2 diabetic patients. Up to half of these individuals may have painful symptoms of whom at least 20% will require some form of pharmacological therapy. The diagnosis of DPN remains a clinical one with exclusion of other causes of neuropathy which is important as no tests can determine that the neuropathy in any patient is caused by the diabetes.

The most troublesome neuropathic symptoms include burning discomfort, altered temperature sensation (feet feel very hot or very cold), hyperaesthesia, tingling, prickling and sudden shooting, stabbing pains. Examination usually reveals a stocking distribution sensory loss although in acute sensory neuropathy, the clinical examination may be normal. Evidence suggests that blood glucose flux, with erratic fluctuations of blood glucose during the day and night, contributes to the pathogenesis of neuropathic pain.

With respect to treatments, the first step is to try and achieve optimal, stable glycaemic control: sudden improvement in control may however actually worsen neuropathic symptomatology. In addition to achieving stable glycaemic control, most patients require some form of pharmacological intervention and first line drugs include anti-epileptics such as Gabapentin and Pregabalin, the antidepressant and dual reuptake inhibitor, Duloxetine, or the tricyclic drug Amitriptyline. Strong evidence from randomised controlled trials supports the use of each of the above agents. For those patients with resistant neuropathic pain, synthetic Opioids such as Tramadol, or stronger drugs such as slow release Oxycodone may be useful in the short term. To date, no specific pathogenetic treatments are licensed in the UK for the management of neuropathic pain. All those with DPN are at increased risk of foot ulceration and require education in foot self-care.

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## TYPE 2 DIABETES MELLITUS (T2DM) IN CHILDREN AND ADOLESCENTS ARE INCREASING WORLDWIDE

**Prof Wieland Kiess**

Director Hospital for Children and Adolescents, Department of Women and Child Health, University Hospitals, University of Leipzig, Germany

Changes in food consumption and exercise are fueling a worldwide increase in obesity in children and adolescents. As a consequence of this dramatic development, an increasing rate of type 2 diabetes mellitus has been recorded in children and adolescents in the USA and, more recently, in many countries around the world. Both genetic and environmental factors contribute to the pathogenesis of type 2 diabetes. Lower susceptibility in white Caucasians and higher susceptibility in Asians, Hispanics and blacks have been noted. There is a high hidden prevalence and a lack of exact data on the epidemiology of the disease in Europe: in Germany only 70 patients below the age of 15 years were identified in the systematic, nationwide DPV (Diabetessoftware für prospektive Verlaufsdokumentation) diabetes survey, but our calculations suggest that more than 5000 young people in Germany at present would meet the diagnostic criteria of type 2 diabetes. In Australasia, the prevalence of type 2 diabetes is reportedly high in some ethnic groups and again is linked very closely to the obesity epidemic. No uniform and evidence-based treatment strategy is available: many groups use metformin, exercise programmes and nutritional education as a comprehensive approach to treat type 2 diabetes in childhood and adolescence. The lack of clear epidemiological data and a strong need for accepted treatment strategies point to the key role of preventive programmes. Prevention of obesity will help to counteract the emerging worldwide epidemic of type 2 diabetes in youth. Preventive programmes should focus on exercise training and reducing sedentary behaviour such as television viewing, encouraging healthy nutrition and supporting general education programmes since shorter school education is clearly associated with higher rates of obesity and hence the susceptibility of an individual to acquire type 2 diabetes

However, our medical care system seems to be inadequate to care for children with T2DM according to two large multicentre databases for obese children (APV) and children with diabetes (DPV) in Central Europe (Germany, Austria and Switzerland) summarising the quality of care in specialised diabetes and obesity treatment centres (registered children and adolescents aged 2–20 years: 54 595 overweight children in APV, 46 693 children with diabetes mellitus type 1 or 2 in DPV). The great majority of specialised paediatric diabetes and obesity treatment centres (>95%) in Central Europe participate in this documentation system.

The majority of children with T2DM remain undiagnosed: Screening studies in obese Caucasian children have reported a prevalence of 0.5% up to 1% of T2DM in obese children  $\geq 12$  years. On the basis of the prevalence of obesity of 6.5% in Central

Europe, approximately 6000 children in Germany, Austria and Switzerland have T2DM. However, in DPV and APV, only 1071 children with T2DM have been registered. Even assuming an overestimation of T2DM in the clinic-based screening studies and failure to detect and register all patients, it is likely that the majority of children with T2DM are undiagnosed. This is in concordance with reports from other countries.

Children and adolescents with a diagnosis of T2DM frequently get lost to follow-up early after diagnosis: In APV, 217 children with T2DM are registered (40% male, mean age 13.6 years). After 4 months, 173 (80%) were lost to follow-up, and only 18 children (8%) were transferred to specialised diabetes centres. In DPV, 991 children with T2DM (39% male, mean age 14.1 years) are currently registered. After 4 months, 620 (63%) of them were lost to follow-up. In DPV, 308 (31%) children were treated with lifestyle intervention, 366 (37%) with oral antidiabetic drugs and 317 (32%) with insulin. Remarkably, loss to follow-up was 20% more frequent in the children treated with lifestyle interventions than in children with drug treatment.

The recommended therapy of lifestyle intervention to achieve weight loss in T2DM is not suitable for most patients: Lifestyle intervention led to a documented reduction of overweight in only 17% of the children treated in paediatric diabetes centres. Similar disappointing findings concerning weight loss were observed in most paediatric obesity treatment centres based on an intention-to-treat approach.

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## **COLLIDING LANDSCAPES: WHAT SHAPES A CLINICAL CONSULTATION**

**Dr Rita Forde**

Research Fellow at the Faculty of Nursing and Midwifery at King's College London

Effective communication is a critical component of the interactions between people living with diabetes and healthcare professionals and is a prominent factor influencing diabetes self-care and positive engagement with healthcare resources. One of the challenges of modern diabetes care is how do we preserve effective communication as an element of caregiving during clinical consultations, an environment often dominated by competing agendas.

Drawing from the findings of an exploratory study about the experiences of pre-pregnancy care for women with type 2 diabetes, this presentation will highlight some of the difficulties expressed by both the women with type 2 diabetes and healthcare professionals. Communication between both groups was often fragmented, leading to mixed messages. This was exemplified by the women with the use of explanations about pre-pregnancy care from healthcare professionals that circumnavigated factual information. Also the conversations were directed toward generic aspects of type 2 diabetes management, such as lifestyle modification, which women perceived as a commentary about their personal failure with their self-care.

The presentation will also address the potential for these challenges to extend to other more general interactions with people with type 2 diabetes. Such that influences external to the people living with diabetes and the healthcare professionals often shape the agendas of consultations from diagnosis, during initial education and throughout ongoing follow-up care.

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## **DISRUPTIVE INNOVATIONS**

**Anne-Marie Felton**

FEND President

The presentation will address the concept of disruptive innovation as coined by Professor Clayton Christensen of the Harvard Business School and Clayton Christensen Institute. I will give some examples of the concept in diabetes care though the concept is not always consciously recognised or acknowledged.

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**Andrew Boulton MB, BS (Hons),  
MD, DSc (hon), FACP, FICP, FRCP**

Professor Boulton is a graduate of Newcastle-upon-Tyne and subsequently trained in Sheffield, and Miami prior to accepting an appointment at Manchester University. He has authored more than 500 peer-reviewed manuscripts and book chapters, mainly on diabetic lower limb and renal complications.

Among his many awards, he has received the ADA's Roger Pecoraro Lectureship, the EASD Camillo Golgi prize and was the first recipient of the international award on diabetic foot research. He was the 2008 winner of the ADA's Harold Rifkin award for distinguished international service in diabetes. He received the 2012 Georgetown distinguished achievement award in diabetic limb salvage. In 2015 he visited Nagoya, Japan and gave a prize lecture on diabetic complications at the Japan Society of Diabetes, and in 2017 he was the Banting Memorial Lecturer at Diabetes UK and also received the International Diabetes Endocrinologist Award of the year from the American Association of Clinical Endocrinologists.

He is a previous editor of Diabetic Medicine and is currently an associate editor of Diabetes Care.

He was the founding Chairman of the Diabetic Foot Study Group and was previously Chairman of Postgraduate Education and then Hon. Secretary/ programme chair for the EASD. Until recently he was President of the EASD. Currently, he is President of Worldwide Initiative for Diabetes Education and Chairman of EURADIA (European Alliance for Diabetes Research).

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**Katarina Braune**

Katarina Braune lives with T1D since 2001 and is a young doctor, diabetes volunteer and researcher at the Department of aediatric Endocrinology and Diabetes of Charité-Universitätsmedizin Berlin. Her studies and medical training took her around the world to Barcelona, London, Johannesburg, Zurich and Malta, before completing her PhD in Paediatrics and starting her training as a Paediatric Endocrinologist in Berlin. She has also worked with Berlin's refugee health unit as a volunteer doctor. Early on, Katarina started volunteering as a global diabetes advocate. She was one of the first Young Leaders in Diabetes of the IDF YLD programme, fighting for global access to insulin and empowering young people to live with diabetes.

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**Anne Dornhorst BSc, BM.BCh,  
DM, FRCP, FRCPath**

Anne Dornhorst is a Consultant Physician and Professor of Practice at Imperial College London. Anne qualified in medicine from Oxford University and completed her postgraduate training in diabetes and endocrinology at the Johns Hopkins Hospital in Baltimore, USA and St Mary's Hospital London. After her return to the UK she has built up an international reputation in the field of diabetes. Her current position is based at the Hammersmith Hospital in London, where her main clinical interest and expertise are in the field of diabetes in pregnancy, nutrition and diabetic kidney disease. Anne has contributed to the national diabetes guidelines in England.

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**Mette Due-Christensen**

After working clinically as a diabetes specialist nurse for several years Mette undertook her MSc at the University of Copenhagen. After completion she worked as a research assistant while also working clinically. Her main interest has been psycho-social issues around living with type 1 diabetes. She has been involved in developing and testing peer support and psycho-social interventions for people with type 1 diabetes.

In 2013 Mette was awarded a scholarship from FEND to undertake her PhD study at Faculty of Nursing and Midwifery King's College London. Her PhD study explores the influence of bio-psycho-social phenomena on the process of adapting to life with type 1 diabetes in adults recently diagnosed with the conditions. It also explores potential mechanisms that could be used to enhance the support provided following a diagnosis of type 1 diabetes in adulthood. The study is transnational and Mette is collaborating with Steno Diabetes Center in Copenhagen, Denmark. Mette is a member of Psycho-Social Aspects of Diabetes (PSAD) a study group under EASD.

**Anne-Marie Felton**

Anne-Marie Felton was a diabetes specialist nurse for over 20 years. She is currently working within the voluntary sector pro bono, nationally and internationally. She is President and co-founder of FEND.

In 1999 she was appointed as a Vice President of Diabetes UK. In addition, Anne-Marie is an Honorary consultant at Queen Mary's Hospital, Roehampton, London, UK; immediate past Vice President IDF and past Chair of the IDF Global Advocacy Task Force; a member of the IDF Steering Group for the 'Unite for Diabetes' campaign that resulted in the passage of the United Nations Resolution on diabetes in December 2006; a member of the Alliance for European Diabetes Research (EURADIA); was co-chair of European Coalition for Diabetes 2012 (ECD).

Anne-Marie was Chair of the Organising Committee for IDF World Diabetes Congress (WDC) 2013 in Melbourne and also IDF WDC 2015 in Vancouver. She was an invited speaker to the European Commission DG Sanco summit on Chronic Disease April 2014. She is co-chair of the Policy Puzzle 4th edition.

In September 2015 she was appointed an Honorary member of EASD (European Association for the Study of Diabetes).

Anne has a special interest in political advocacy for people with diabetes and the recognition of Diabetes Specialist Nurses.

**Angus Forbes**

Professor Forbes holds the FEND Chair of Diabetes Nursing at King's College London and holds an honorary post as a specialist diabetes nurse at King's College Hospital. Prof Forbes is an active researcher in diabetes, recent projects include: diabetes prevention in women with GDM; factors contributing to mortality in older people; preconception care in women with Type 2 diabetes; a national scoping project on diabetes care and organisation; the relationship between cognitive impairment and diabetic retinopathy; supporting patients in insulin intensification; eye screening uptake; structured education uptake; evaluating a telecare intervention to support weight loss in type 2 diabetes; the bio-psychosocial impact of new onset Type 1 diabetes in adults; and a trial of virtual clinics to improve primary care based diabetes outcomes. Angus has been NHS Diabetes London regional champion for older people with diabetes and is currently a Vice President of the International Diabetes Federation. Angus was previously: a senior lecturer in diabetes at King's College London; a lecturer in health services research at University College London Medical School; and a health visitor and district nurse in East London.

**Rita Forde**

Rita Forde was awarded a Doctoral Fellowship from the Foundation of European Nurses in Diabetes (FEND) to undertake a PhD at King's College London, in 2013. Following successful completion of her PhD, she is currently a Research Fellow at the Faculty of Nursing and Midwifery at King's College London. Prior to moving to the UK, Rita was a member of the diabetes team at the Mater Misericordiae University Hospital, Dublin, where she held various positions, including the inaugural Advanced Nurse Practitioner post for diabetes nursing in Ireland. In addition to her General Nursing and Midwifery training, Rita completed a B.Sc.,

MSc (ANP) and Higher Diploma (Diabetes Nursing) at University College Dublin and nurse prescribing qualification at the Royal College of Surgeons, Dublin. Rita has contributed to diabetes care nationally and internationally.

**Deirdre Gleeson**

Qualified as an RGN in Dublin in 1982.

Worked in Plastic Surgery, ENT, Gynaecology and Oncology.

In 1987 moved to the Diabetes Centre in St Vincents University Hospital. The centre was established by Prof Joe Mc Kenna in 1984. This year I celebrated 30 years in SVUH Diabetes Centre.

There was no formal training available for specialising in Diabetes then. All my learning was self directed and obtained from reading, doing courses in counselling and education and attending conferences.

Facilitator to H Dip Diabetes students. Honorary Secretary and Currently Chairperson of the Irish Diabetes Nurse and Midwife Specialist Association.

**Arja Halkoaho**

PhD, RN, Midwife, Arja Halkoaho has also specialization in diabetes and Vocational teaching educational in University of Applied Sciences in Jyväskylä. Current work position is development manager in research Kuopio University Hospital and main focus in work is research ethics committee. Research area is ethical aspects in health research: e.g. informed consent and risk assessment in clinical trials, cultural aspects in informed consent process. FEND EC member since 2016.

**Bastian Hauck**

Patient Advocate at #dedoc°

Bastian is a German Patient Advocate and the Founder of the #dedoc° Diabetes Community. As CEO of dedoc labs, he consults on digital health solutions and patient centred communication in social media. Bastian also serves on the Board of diabetesDE – German Diabetes Aid, where he is responsible for awareness campaigns and patient engagement.

**Wieland Kiess**

Wieland Kiess is Professor of General Paediatrics and Director of the Hospital for Children and Adolescents at the University of Leipzig, Germany. His career in medicine and research has resulted in many awards and has included periods working in the UK, USA (as a visiting research fellow at the National Institutes of Health) and Australia, as well as a PhD awarded from the University of Munich. Professor Kiess is a member of numerous national and international medical societies, including ESPE and the Endocrine Society, and was past-President of ESPE in 2011–2012 and Chairman of the 51st ESPE annual meeting in 2012. He is author of more than 600 original research and review articles, as has been editor or co-editor of more than 25 books. Professor Kiess has served on the editorial boards of many journals in the field of endocrinology and related areas, including Hormones, Nature Reviews in Endocrinology, Metabolism and Journal of Pediatric Endocrinology & Metabolism. In 2016 he was awarded the Andrea Prader Prize of the European Society for Paediatric endocrinology.

**Peter Lucas**

Peter is a born entrepreneur and manager.

Peter makes things happen, sees opportunities, and is good at motivating people around him. Peter gets in touch with potential new partners and involves relevant persons in the development of Hedia. Peter has a BA in innovation and entrepreneurship as well as several years' experience of running businesses. Having Peter on the team means all formalities taken care of.

Peter has diabetes type 1 himself and was raised by a father with type 1 diabetes as well.

**Emma Matthews**

I am myself a registered nurse of 25 years. In 2000 I gave birth to my second son who at the age of 17 days old was rushed to hospital gravely ill and was eventually diagnosed with type 1 diabetes. Over the next 5 years I discovered that Jack also had significant learning disabilities. Jack's diabetes was very unstable and I constantly researched new treatments. In 2004 some new research from Exeter was published and this was to change our lives forever, saving Jack's life. Ever since then I have worked to promote this research and help spread the word so families around the world hear about a new genetic form of diabetes that can be treated easily with oral medication.

**João Nabais**

Diagnosed with type 1 diabetes in 1981, João has been actively involved in the field of diabetes through his work for the Portuguese Diabetes Association (APDP) and IDF Europe. At national level, João has been working on different projects including youth camps, several campaigns as advocate, educational courses provided to people with diabetes and parents of children with diabetes. In 2008, João

joined the Board of IDF Europe and served as President (2012-2015). João graduated in Technological Chemistry from the University of Lisbon and he holds a PhD in Chemistry from the University of Evora, where he works as Assistant Professor.

**Ab Osterhaus**

Virologist and veterinarian Ab Osterhaus is professor and director of the Center of Infection Medicine and Zoonosis Research at Hannover Veterinary University. He led numerous international projects, discovered dozens of human and animal viruses, and studied their pathogenesis and intervention strategies. He published >1200 papers (H-index >100), trained >80 PhD's, received numerous prestigious awards, is member of the Dutch and German Academies of Sciences, and Commander of the Order of the Dutch Lion.

Most of all, Professor Osterhaus firmly believes that scientists have a role to play in translating their knowledge for the benefit and protection of society.

**Ana Cristina Paiva**

Performed FEND ENDCUP course with MSc in Diabetes Clinical Care and Management by King's College of London.

Between 1991 and 2003 developed activities in several departments within Hospitals namely: Pediatric Medical and Surgical emergency and Neonatology. Since 2003 onwards is a nurse at the Portuguese Diabetes Association – Research and Education Center (APDP-Erc). At this outpatient clinic was coordinator nurse in the department of Studies, Projects and Clinical Trials from 2005 to 2008. Is a diabetes nurse at APDP in the Diabetes consultation, coordinator of the Department of Medical

Specialties and collaborates in the area of Training as coordinator of some courses for professionals and people with diabetes of the APDP. Presented oral communications at national and international events, is the author and co-author of several articles and book chapters. Also a member of the Executive Committee of Foundation for European Nurses in Diabetes (FEND) and is a facilitator of congresses and seminars of the APDP and others.

**Helen Rogers**

Helen Rogers is a Nurse Consultant in Diabetes, working at King's College Hospital (KCH) NHS Foundation Trust in this position for the last 9 years, and before this a Diabetes Specialist Nurse for 10 years. She is an active researcher and currently continuing research in the area of impaired awareness of hypoglycaemia. The HARPdoc randomised control study has begun (Hypoglycaemia Awareness Restoration Programme for people with type 1 diabetes and problematic hypoglycaemia persisting despite optimised care) - a programme using skills of CBT and motivational interviewing to assist people regain hypo awareness.

Helen was one of the key team members involved with initiating the KCH Continuous Subcutaneous Insulin Infusion (CSII) service, with over 550 people using CSII and approximately 140 people using continuous glucose monitoring. She has been involved in the DAFNE (Dose Adjustment For Normal Eating) since its inception in the UK. Other areas of interest are; pregnancy and diabetes and new innovations in diabetes therapy.

**Alan Sinclair**

Professor Alan Sinclair is a world authority in diabetes and clinical gerontology and is Director of the Foundation for Diabetes Research in Older People at Diabetes Frail Ltd in Bedfordshire, England. Professor Sinclair is also Hon Professor of Metabolic Medicine at Aston University and honorary Professor of Diabetes at the Heart of England NHS Foundation Trust, Birmingham.

He has provided advice for the UK NICE organisation, Care Quality Commission (CQC) and the UK Government Department of Health on matters relating to diabetes in older people. He has produced international guidelines on diabetes care for older people available on [www.diabetesfrail.org](http://www.diabetesfrail.org)

Alan has been designated a WHO Expert in Diabetes and more recently been appointed to a WHO Expert Group on Frailty. He was awarded the *Presidential Medal of the IAGG* in 2013 for services to older people and diabetes.

Professor Sinclair was the first National Clinical Lead in England for Older People with Diabetes (NHS Diabetes, DH)

**Frank J Snoek**

Frank J. Snoek, PhD is professor of Medical Psychology with a specialization in diabetes psychology. He is head of the Medical Psychology departments at the VU University Medical Center (VUmc) and the Academic Medical Center (AMC) in Amsterdam, the Netherlands. Prof. Snoek and his team have developed a number of psychological questionnaires and evidence-based psychological interventions for patients with diabetes that are partly or fully internet-based. He was the founder and chair of the EASD Psychosocial Aspects of Diabetes (PSAD) study group and member of the IDF Type 2 diabetes Task Force. He has published extensively on the topic of diabetes psychology.

**Tanja Tilles-Tirkkonen**

Ph.D, authorized nutritionist

Researcher, coordinator of the StopDia – research project.

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**1 (ORAL)****CLINICAL AND SOCIO-DEMOGRAPHIC DETERMINANTS OF SELF-CARE IN TYPE 2 DIABETES PATIENTS: A MULTI-CENTRE CROSS-SECTIONAL STUDY**

**Daive Ausili<sup>1</sup>, RN, MSc, PhD. Research Fellow in Nursing Science; Emanuela Rossi<sup>2</sup>, PhD. Research Fellow in Medical Statistics; Paola Reborà<sup>2</sup>, PhD. Assistant Professor in Medical Statistics; Michela Luciani<sup>1</sup>, RN, MSc, PhDs. Research Fellow; Luca Tonoli<sup>3</sup>, RN, MSc. Adjunct Professor of Medical Nursing; Enrico Ballerini<sup>3</sup>, RN, MSc. Adjunct Professor of Health Management; Silvia Androni<sup>1</sup>, RN, MSc. Clinical Nurse; Ercole Vellone<sup>4</sup>, RN, MSc, PhD. Assistant Professor in Nursing Science; Barbara Riegel<sup>5</sup>, RN, FAHA, FAAN, PhD. Professor of Nursing; Stefania Di Mauro<sup>1</sup>, RN, MSc. Associate Professor in Nursing Science**

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<sup>5</sup> University of Pennsylvania, Philadelphia, Pennsylvania, United States of America

**Background**

Knowledge of clinical and socio-demographic determinants of self-care in type 2 diabetes mellitus (T2DM) population is needed to identify patients at risk of poor self-care and to tailor effective interventions. Determinants of self-care, as defined by the middle-range theory of self-care of chronic illness, have not previously been investigated in T2DM.

**Aims**

To describe self-care maintenance, monitoring, management and confidence and to identify their clinical and socio-demographic determinants in a T2DM population.

**Methods**

A multicentre cross-sectional study was conducted involving 540 patients with a confirmed diagnosis of T2DM from 6 outpatient diabetes services in Italy. Socio-demographic and clinical data were collected from medical records. The Self-Care of Diabetes Inventory (SCODI) was used to measure self-care maintenance, monitoring, management and confidence dimensions. Scores were standardized 0-100 with higher SCODI scores indicating better self-care; a score  $\geq 70$  is adequate. Multiple quantile regression models were performed to identify determinants of each self-care dimension.

**Results**

Self-care maintenance (median = 81.2, Q1-Q3: 72.9-89.5) and self-care confidence (median = 79.5, Q1-Q3: 65.9-93.1) were adequate in most of the subjects. Self-care monitoring was adequate only in half of the sample (median = 70.5, Q1-Q3: 55.8-85.2). Self-care management was poor (median = 59.3, Q1-Q3: 39.7-75.0). Lower self-care maintenance was associated with lower self-care confidence (beta= 0.13;  $p < 0.001$ ). Lower self-care monitoring was associated with being male (beta= -9.95;  $p < 0.001$ ),

having lower self-care confidence (beta= 0.48; p<0.001), and having diabetes for < 10 years (beta= -9.68; p<0.001). Lower self-care management was associated with being male (beta= -6.35; p=0.002), being older (beta= -9.24; p=0.005), having a low income (beta= -4.44; p=0.030), being employed (beta= -8.33; p=0.008), having missed diabetes education in the last year (beta=-12.73; p=0.002), and lower self-care confidence (beta=0.7; p<0.0001). Lower self-care confidence was associated with having diabetes for less of 10 years (beta= -6.06; p=0.008), lacking family support (beta= -5.30; p=0.054) and having at least one comorbid condition (beta=-9.09; p=0.006).

### Conclusions

Determinants of self-care maintenance, monitoring, management and confidence include both clinical and socio-demographic variables. Modifiable determinants such as self-care confidence, diabetes education, and family support could be used to tailor interventions to improve diabetes self-care.

## 2 (ORAL)

### TELEMEDICINE FOLLOW-UP FOR PATIENTS WITH DIABETES-RELATED FOOT-ULCERS IN PRIMARY HEALTH CARE. A CLUSTER RANDOMIZED CONTROLLED NON-INFERIORITY TRIAL

Iversen M.M.<sup>1,2,3</sup> PhD, Smith-Strøm H.<sup>1,3</sup> MSc, Igland J.<sup>1,3</sup> PhD, Østbye T.<sup>4</sup> PhD, Tell G.S.<sup>3</sup> PhD, Hausken M.F.<sup>2</sup>, Skeie S.<sup>5</sup> PhD, Cooper J.G.<sup>2</sup> MD, Graue M.<sup>1,3</sup> PhD

<sup>1</sup> Department of Health and Social Science, Centre for Evidence-Based Practice, Western Norway University of Applied Science, Bergen, Norway

<sup>2</sup> Department of Medicine, Section of Endocrinology, Stavanger University Hospital, Stavanger, Norway

<sup>3</sup> Department of Global Public Health and Primary Care, University of Bergen, Norway

<sup>4</sup> Duke Global Health Institute, Duke University, Durham, North Carolina, USA

<sup>5</sup> Department of Research, Stavanger University Hospital, Stavanger, Norway

**Background:** In diabetes foot care, we lack knowledge about the effect of telemedicine follow-up and how such services can be optimally organized across organizational boundaries.

**Aim:** To evaluate the effect of telemedicine follow-up in primary care compared to standard hospital outpatient care on ulcer healing time in patients with diabetes-related foot ulcers (DFU).

**Methods:** We conducted a multi-center cluster-randomized controlled non-inferiority trial of a telemedicine intervention in 42 municipalities/ districts in Western Norway, including 182 patients (94 Telemedicine (TM)/ 88 Standard Outcome Group (SOC)). The intervention consisted of a web-based ulcer record combined with a mobile-phone to facilitate asynchronous communication and close integration between primary and specialist health care. The primary outcome was healing time. Secondary endpoints were number of amputations and deaths. In addition, qualitative substudies were conducted among patients in the intervention- and control group and health care professionals either working in primary care or in specialist care delivering the intervention.

**Results:** TM follow-up among patients in primary health care was non-inferior to standard outpatient care with regard to healing time among those whose ulcers healed (mean diff - 0.43 months, 95% CI -1.50, 065). When taking into account competing risk of amputation and death there was no difference in healing time between the two groups (SHR 1.16, 95% CI 0.85 – 1.59). Of 182 patients, 19 (10.6%) had an amputation: 6 (6.4%) in the TM group and 13 (14.8%) in the SOC group. In total 10 (5.5%) patients died: 5 (5.3%) in TM group and 5 (5.7%) in the SOC group. The qualitative substudies provided a more comprehensive evaluation of the ongoing processes during the trial.

**Conclusion:** This telemedicine intervention was implemented in a novel setting. Given the findings of no difference in terms of healing time and death, and significant fewer amputations in the TM group, TM in the follow-up care for patients with DFU is a promising care option. The qualitative interviews shared light on important factors and conditions to take into account for further use of telemedicine technology.

*Clin-trial.gov:* NCT01710774

## 3

### THE IMPACT OF SIMULATION-BASED EDUCATION ON STUDENTS' KNOWLEDGE AND SKILLS IN DIABETIC FOOT EXAMINATION

İnkaya Vardar B.<sup>1</sup>, Tuzer H.<sup>1</sup>, Elcin M.<sup>2</sup>

Outpatient Nursing Services & Department of Endocrinology, Aga Khan University, Karachi, Pakistan

#### Background

The nurses taking care of patients with diabetes are expected to be aware of the complications, and competent in examining, consulting and providing care for the patients with complications. The awareness and skills for diabetic foot is also a challenging issue for undergraduate nursing students.

#### Aim

The aim of the study was to explore the effect of education provided with standardized patient and high-fidelity simulator upon nursing students' knowledge and skills in diabetic foot examination and to obtain their views about simulation-based education.

#### Methods

The study was designed in semi-experimental and qualitative model. The study was done in the Simulation Laboratory of Nursing School of a university and Yenimahalle Training and Research Hospital. The sample of the study was consisted of 42 students who did internship and were randomly recruited. To assess students' knowledge level, a test was given to the students before and after the implementation of the study. Then for the preliminary skill assessment, diabetic foot examination was done on a real patient with foot wounds caused by phase I diabetes under the supervision of the researcher. For the same examination; 21 of the students used high-fidelity simulator (HFS) while other 21 students used standardized patients (SP). In the final phase of the skill assessment; all the students again did diabetic foot examination on a real patient.

#### Results

Among the students who were trained with HFS; there were no statistically significant differences in terms of knowledge scores while among the students who were trained with SP; a significant increase was found in their knowledge scores ( $p < 0.05$ ). Change in knowledge scores among the groups was found to be similar before and after simulation education. Both groups demonstrated statistically higher mean skill scores in the second examination on real patient following the simulation education (HFS: 85.29 SP: 85.29) as compared to scores achieved in the first examination on real patient and simulation training- ( $p < 0.05$ ). It was seen that change in skill scores of both groups was similar.

#### Conclusions

In line with these results; it is recommended that high-fidelity simulator and standardized patient should be used in different courses of nursing curriculum.

## 4

### ASSOCIATION BETWEEN REGISTERED NURSES WITH DIABETES-SPECIFIC EDUCATION AND METABOLIC CONTROL FOR PEOPLE WITH TYPE 2 DIABETES MELLITUS

Husdal, R.<sup>1,2</sup> (MSc, PhD student), Rosenblad, A.<sup>1</sup> (Assoc Prof, statistician), Thors Adolfsson, E.<sup>1</sup> (PhD, RD), Leksell, J.<sup>2</sup> (Assoc Prof, RN)

<sup>1</sup> Centre for Clinical Research, Uppsala University, Västerås, Sweden

<sup>2</sup> Department of Medical Sciences, Uppsala University, Uppsala, Sweden

#### Background

Self-management by the person with type 2 diabetes mellitus (T2DM) is a critical element in their care. RNs are educated in diabetes for promoting supported self-management for people with T2DM but little is known about whether RNs' educational level (i.e., European Credit Transfer and Accumulation System [ECTS] credits) improve the metabolic control of people with T2DM.

#### Aim

To examine the association between RNs with diabetes-specific education and metabolic control (HbA1c, SBP and LDL levels) of people with T2DM.

#### Methods

This nationwide cross-sectional study included a total of 230 958 people with T2DM attending 846 primary health care centres (PHCCs) in Sweden. The number of RNs' ECTS credits in diabetes-specific education was obtained by answering the 2013 Swedish National Survey of the Quality and Organization of Diabetes Care in Primary Healthcare (Swed-QOP) questionnaire. Individual data on people with T2DM HbA1c, SBP and LDL levels were obtained from the Swedish National Diabetes Register and linked to registers containing individual level data on socio-economic status and comorbidities. Data were analyzed using a generalized estimating equations linear model. The final model comprised valid values for 782 PHCCs and 125 684 people with T2DM.

#### Results

The participants had a mean (SD) age of 67 (11) years and a diabetes duration of 9 (8) years. The people with T2DM had a mean (SD) HbA1c level of 54 (13) mmol/mol, SBP level of 135 mm Hg (15) and LDL level of 2.6 (0.9) mmol/l. RNs at the PHCCs had a mean (SD) of 15 (8) ECTS credits in diabetes-specific education. After adjusting for PHCC and individual level confounders, comparing RNs with 30 and 15 ECTS credits, RNs' educational level in diabetes improved the HbA1c (-0.17 mmol/mol;  $P = 0.007$ ) and SBP (-0.36 mmHg;  $P < 0.001$ ) levels. No significant association was found regarding LDL level.

#### Conclusion

The present large sample cross-sectional study found that RNs' educational level in diabetes improved the metabolic control in terms of HbA1c and SBP levels for people with T2DM.



5

## SMOKING BEHAVIOURS OF PEOPLE AFTER THEY WERE DIAGNOSED WITH TYPE 2 DIABETES

Aslı Yılmaz<sup>1</sup>, Seyda Ozcan<sup>2</sup>

<sup>1</sup> Okmeydanı Training and Research Hospital, Istanbul, Turkey

<sup>2</sup> Koc University School of Nursing, Istanbul, Turkey

### Background

Nicotine has negative effect on developing diabetes, its complications and maintaining glycemic control. There is limited data about smoking behaviours of people with diabetes whereas smoking assessment and cessation counselling is crucial in diabetes management. Similarly, there is lack of data on the prevalence of smoking in population with diabetes and it is a neglecting problem in diabetes management and education in Turkey.

### Aim

The study investigated smoking / tobacco use behaviors and factors affecting these behaviors in individuals after diabetes diagnoses.

### Methods

This cross-sectional study consisted of individuals with type 2 diabetes aged 20 years or older who were smoking when diabetes was diagnosed (n=150). A questionnaire prepared by the researchers and the Fagerström Nicotine Dependence Scale were used to collect the data. The data were analyzed in the SPSS-22 at a 95% confidence interval and 5% significance level.

### Results

The average age to start smoking was  $18.15 \pm 5.2$  years (6 to 34 years). After the diabetes diagnosis, 33.3% of the cases were not asked whether they were using cigarettes; 89.3% of them did not receive any education about the harms of the cigarette; 44.6% of the cases had stopped smoking, 19.3% had decreased the amount, and 36% had continued to smoke in the same way. Average of smoking cigarettes consumed in one day was found to be significantly higher in the individuals who quit smoking after the diagnosis ( $26.42 \pm 16.82$  piece), who is reducing the amount of smoking ( $24.10 \pm 15.55$  piece) and individuals who do not change the amount of cigarettes they use ( $19.52 \pm 9.94$  piece) ( $p=0,03$ ). Professional support giving to those people did not significantly affect smoking cessation, but also it was highlighted that the rate of receiving professional support for smoking cessation was low in all cases (8,6%).

### Conclusion

The smoking assessment rate and professional guidance for cessation in individuals with diabetes was low; a large part of individuals continued to smoke after diabetes diagnosis; they did not receive sufficient education about the harms of smoking. Individuals with diabetes should be assessed for smoking as a routine care and follow-up, smoking cessation counselling should be given.

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## DIABETES AWARENESS AMONG HEALTH SCIENCES STUDENTS

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### Background

Diabetes is an important public health problem in all over the world. The prevalence of diabetes is increasing rapidly due to the fact of lifestyle changes such as unhealthy diet, excessive weight gain and sedentary lifestyle. Diabetes is a preventable disease, increasing the level of knowledge and awareness of the population on the issue of diabetes will prevent both the risk factors that may arise from diabetes and the development of the disease.

### Aim

This descriptive study was conducted to determine the diabetes awareness of students taking education in a faculty of health sciences in Turkey.

### Method

The study composed of 530 students, taking education in nursing and nutrition and dietetics departments. "Diabetes Awareness Information Form" developed by researchers that consisted of 59 questions, including diabetes risk factors, symptoms, complications and management was used in data collection. Data were analyzed by percentage, mean, chi-square test using SPSS for Windows 20.0.  $p < 0,05$  value was accepted as statistically significant.

### Results

The study was conducted with 367 nursing and 163 nutrition and dietetics students. The mean age of the students was  $20,64 \pm 1,84$  years and 87,2% of them were female. The study found that 29,2% of participants had a person with diabetes in their relatives, and 72,3% of them took courses about diabetes. More than half of the students expressed that type 2 diabetes was a preventable disease, and 69,2% of the students stated that diabetes caused macrovascular and microvascular complications. Most of the students expressed that exercise, diet and daily foot care were important factors in diabetes management. Nursing students' diabetes awareness were higher than nutrition and dietetics students. Students who were female, educating in nursing department and graduated at 3rd and 4th year had higher diabetes awareness ( $p < 0,05$ ).

### Conclusion

In conclusion, awareness of diabetes among health sciences students were high. We suggest that emphasizing the importance of diabetes in the courses and enhancing the awareness about diabetes will be beneficial for students.

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## RE-EDUCATION FOR PATIENTS WITH TYPE 2 DIABETES IN THE PROGRAM EVALUATION STUDY »I CAN!«

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### Background

Studies have shown that the treatment and management of diabetes is more successful when patients are included in the treatment. We must acknowledge that patients are experts on their own lives, and that patients should carry out 98% of the care themselves. By coordinating the activities of all involved in diabetes treatment and combining their knowledge with experience, we achieve the most effective treatment and consequently the greatest patient satisfaction.

The aim of this study was to identify if we can improve clinical outcomes with the inclusion of the patients in the process of goal-setting.

### Methods

The purpose of the study was to provide a re-education process in Type 2 diabetes patients with relatively good cognitive skills. In February 2016 we administered five forms with the most frequent problems and offered the patients the possibility to choose at most three. We measured clinical outcomes (HbA1c and BW) before the intervention (V1), after five months (V2) and a year post intervention (V3).

### Results

41 of 47 participants completed V1, V2 and 34 all visits. HbA1c (-0.9%) and BW (-1.91 kg) were significantly reduced in five months without changes in therapy and after a year post the intervention HbA1c (-0.5%) and BW (-1,43 kg). Most of selected goals were from the category Nutrition (83.33%). The answers in the Questionnaire about Satisfaction gave us very strong confirmation that the method was well accepted by the patients.

### Conclusion

Our findings suggest that encouraging diabetic patients to choose their own quantifiable and comprehensible goals increase motivation and enhance self-confidence in order to improve clinical outcomes. They come to understand the reasons for the poor results of their current medical treatment. Definitely re-education is needed every year to maintain motivation. This approach requires a lot of time, sufficient human resources and suitable space. Nevertheless, it offers an excellent path forward and the best way for us to think about how we should continue our work with patients.

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## A SYSTEMATIC REVIEW TO EXPLORE THE EFFECT OF CONTINUOUS GLUCOSE MONITORING ON GLYCAEMIC CONTROL DURING PREGNANCY IN WOMEN WITH PRE-EXISTING DIABETES MELLITUS

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### Background

Pregnant women with pre-existing Diabetes Mellitus (Type 1 or Type 2) have worse maternal and neonatal outcomes than pregnant women without diabetes. Congenital abnormalities and macrosomia of the infant are related to maternal glucose control, thus maintaining good glucose control is imperative for the baby, however with increased risk of severe hypoglycaemia for the mother. Continuous Glucose Monitoring (CGM) technology may help to improve glucose control.

### Aim

This systematic review assesses recent scientific research of the effect of CGM on glycaemic control during pregnancy in women with pre-existing diabetes and discusses its use to maintain a stable HbA1c, prevent (severe) hypoglycaemia, and limit hyperglycaemic excursions throughout pregnancy.

### Method

A systematic search was conducted in Pubmed; EMBASE; PsychInfo; CINAHL; and Maternity and Infant Care Database (MIDIRS) for articles on CGM, Pregnancy and pre-existing Diabetes Mellitus from 2013 to 2016. Studies related to Gestational Diabetes or neonatal outcomes were excluded. Articles were assessed for bias using the Cochrane Criteria.

### Result

358 articles were retrieved, 7 relevant to the research question according to the inclusion and exclusion criteria. 3 articles were available as full text, 4 as conference abstract. One RCT, 2 randomised trials, 3 observational studies and 1 study unclear-in-design were retrieved. A pooled meta-analysis of HbA1c outcomes in 3 studies showed a slight favouring of the intervention group. One study showed improved HbA1c in unplanned pregnancies. The incidence of (severe) hypoglycaemia displayed no significant difference compared to control groups, although fewer events than pre-pregnancy was noted. Reduced hyperglycaemia in one study seemed related to the variable insulin administration rather than use of CGM.

### Conclusion

The evidence that CGM alone will improve HbA1c and reduce hypo- and hyperglycaemia, is limited. These studies in small populations, used technologies surpassed by those used in clinical practice. The evidence suggests that CGM together with education and support from an experienced health care team will improve outcomes for mother and baby. New technologies with variable insulin administration seem promising in reducing hyperglycaemia

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**DIABETES AWARENESS STRATEGIES FOR DIFFERENT AREA OF “RULE OF HALVES”**

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**Background**

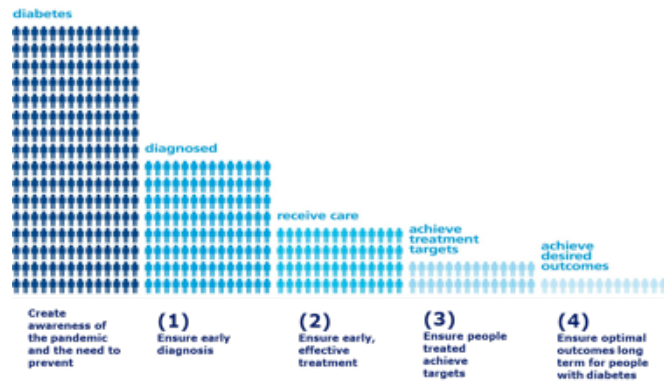
Evidences suggest that approximately half of people with diabetes are undetected, that half of those detected are not treated, and that half of those treated are not controlled: the “rule of halves”. Iran, a country in MENA region has almost seventy-two millions population which 8.5% of its adult population (20-79 years) have diabetes. Studies shows numbers will be double during next two decades. Applying Rule of Halves’ facts makes a big concern for Iran with its huge number of diabetes people.

**Aim**

To present Iran diabetes educational strategies for diabetes prevention.

**Methods**

The role of education in early diagnosis and recognizing all aspects of Rule of Halves is the base of this intervention.



We tried to break Iran Rule of Halves through below actions:

- (1) Numerous diabetes awareness campaigns like mountain climbing, cycling, marathon, soccer match, celebrities’ participation, etc. Diabetes buses in different cities
- (2) Diabetes education events in health centers about the importance of early treatment. Providing educational support by well-trained educators.

- (3) Patient support program and following diabetes people via hotline, follow-up and face-to-face visits, holding education events about diabetes long term complications like foot care and free HbA1c test through special project.

**Result**

During previous 8 years in Iran, more than 400,000 people have received our message. Based on pre and post-tests evaluation diabetes awareness has increased. Breaking the “rule of halves” by 10% increase in diagnosis rate is Iran’s achievement today. Table I shows 2016 activities’ results.

Area	Awareness campaigns (early diagnosis)	Patient education (early treatment)	Follow up (achieving targets)	Total
No. of events	58	560	122	740
No. of people	24829	37848	40798	103475

Table I: Number of events and people received diabetes message in 2016.

**Conclusion**

Education as critical elements can increase diagnosis rate, prevents diabetes and diabetes-related complications. Education also improve the performance of healthcare professionals and overall treatment results. This team have been also rewarded from some global organization like World Diabetes Foundation in world diabetes day 2016.

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**THE ADMINISTRATION OF INSULIN WITH THE INSULIN PEN: A REVISED DUTCH GUIDELINE**

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**Background**

Administration of insulin using an insulin pen, although a routine task for many diabetes

patients, should be correctly performed to obtain the desired insulin profile action and prevent or limit adverse effects. The Dutch guideline "Administration of insulin with the insulin pen" (2008) needed updating.

**Aim**

To provide healthcare professionals with an evidence based guideline and practical overview of recommendations and considerations.

**Method**

The Research question was developed by a task force of diabetes nurses and tested in focus groups: "What is the recommended method for injecting insulin with an insulin pen for people with diabetes mellitus, such that the blood glucose regulation will be optimised and possible adverse effects will be reduced?". The systematic literature search was performed in PubMed, Cinahl, Invert and Embase from 2008 to August 2016, was reviewed by 2 reviewers and quality assessed using EBRO criteria. The consensus document was reviewed by stakeholders and presented to National Boards for ratification.

**Result**

Of the 225 articles retrieved, 53 were included in the review process as were 5 (inter)national guidelines and two later systematic reviews and a research article. Level of evidence varied between Level 1 (2); Level 2 (20) and Level 3 (6).

22 (new) recommendations were formulated, highlights include:

**Materials**

Determine pen needle length based on subcutaneous tissue thickness. First choice 4-5mm; alternative 6-8mm.

**Preparation**

Maximum volume analogue insulin to be injected is maximum possible insulin pen dosage.

Injection site: Inject into normal subcutaneous tissue using a rotation scheme to prevent lipohypertrophy. Consider adjusting insulin dose if changing from lipo- to healthy tissue.

**Administration**

To avoid injecting into muscle tissue, inject 90° to skin surface with 4-5mm pen needle and 45° to skin surface with 6-8mm pen needle.

**Safety needles**

Legally required in healthcare institutions, correct instruction in use is recommended.

**Anxiety**

Discuss injection related anxiety with patient and look for ways to reduce fears.

**Conclusion**

This updated evidence based guideline includes all aspects of injecting with the insulin pen. It provides practical recommendations and considerations for use in daily practice

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**A PORTRAIT OF DIABETES EDUCATION TEAM'S ACTIVITIES IN IRAN**

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**Background**

Iran is one of the countries in MENA region embraces 1.1% share of world diabetes burden with 4.6 million cases of diabetes in 2015. This number of patient with diabetes would be twice with 9.5 million cases of diabetes in 2040.

Applying rule of halves only 6% of the people with diabetes in Iran achieve desired outcomes because of lack of awareness and education. Here we are filling the gap in Iran diabetes care.

**Aim**

To illustrate Iran educational support for people with diabetes.

**Methods**

we believe in importance of education in reaching glycaemic control targets. With this aim, we are holding education sessions in all health centres providing education materials with 8 different modules including basic of diabetes, nutrition, travel, Ramadan , complication 1 and 2, exercise, foot care based on IDF guideline and following them with HBA1C test quarterly. Also, We have different type of session for people with diabetes/ health care professionals towards increasing awareness on diabetes control and achieve treatment target. Moreover, Evaluating the rate of awareness has been measured by valid pre and post test( post test\_pre test/pre test\*100) . In spite of not having enough diabetes educators and diabetes nurse in Iran, so we invite health care professional to join us, participate in education courses to be trained and act in the best way toward changing diabetes.

**Result**

During previous 8 years in Iran, people with diabetes and 40,000 of health care providers were received our education supports in 13 different cities of Iran while their knowledge were evaluated by pre and post test. Here we have the last year, 2016 results which is shown in table 1:

Audience	% of awareness	Numbers
Patient with diabetes	76.5%	37848
Health care professional	72.75%	11426

**Conclusion:** Diabetes interventions not only works to reduce the risk of diabetes-related complications, but also improve quality of life of the person with diabetes which finally leads toward breaking the rule of halves and progressive diabetes trend.

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## EVALUATION OF SEXUAL FUNCTION AMONG WOMEN WITH OR WITHOUT DIABETES

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### Background

Diabetes is one of the chronic diseases that affect sexual function. Sexual dysfunction is also a common problem in women around the world. Women with diabetes had sexual dysfunction due to the vascular and neuropathic problems caused by diabetes.

### Aim

This descriptive study was conducted to compare the sexual function among women with type 1 and type 2 diabetes, and without diabetes.

### Methods

The study was conducted 30 women with type 1 diabetes, 30 women with type 2 diabetes attending a diabetes polyclinic in an university hospital and 30 women without diabetes between the dates of September 2015-December 2016. "Patient Information Form" and "The Female Sexual Function Index (FSFI)" were used for data collection.  $p < 0.05$  value was accepted as statistically significant.

### Results

There was a significant difference between the mean scores of desire, arousal, lubrication, orgasm, satisfaction and pain subscales of FSFI in women with type 1 diabetes, type 2 diabetes and without diabetes ( $p < 0.05$ ). No difference was found between the mean scores of subscales of the scale in women with type 1 diabetes who had neuropathy, nephropathy and retinopathy ( $p > 0.05$ ).

It was determined that as the fasting plasma glucose level of women with type 1 diabetes increased, the sexual desire decreased. It was determined that as the duration of diabetes increased in women with type 2 diabetes, arousal problem was increased in their sexual life. It was found that as the post-prandial glucose level of women with type 2 diabetes increased, they experienced less arousal, orgasm, satisfaction and more pain in their sexual lives. It was determined that as glycosylated hemoglobin level of women with type 2 diabetes increased, they experienced less arousal and orgasm in their sexual life.

### Conclusion

Women with diabetes had more sexual function problems in comparison to women without diabetes. It has been recommended to increase the awareness of nurses about the effects of diabetes on sexual health.

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## EVALUATION OF THE EFFECTS OF MULTIDISCIPLINARY INTERVENTIONS ON DIABETES-RELATED EMOTIONAL DISTRESS = DIABETES DISTRESS IN AN OUT-PATIENT CLINIC, DENMARK

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### Background

Persons with diabetes (PWD) reported that living with diabetes was a psychological burden. 26.1% of persons with type 1 diabetes reported high diabetes distress (Diabetes, Attitudes, Wishes and Needs (DAWN2) study in Denmark) resulting in higher HbA1c, lower levels of well-being and higher levels of depression.

In order to assess PWD's psychosocial needs and to assure care, the Monitoring Individual Needs in Persons with Diabetes (MIND) online tool was implemented into routine care in 2015.

### Aim

To evaluate the effects of multidisciplinary interventions on diabetes distress for persons with type 1 diabetes after starting insulinpump treatment.

### Method

At baseline before insulinpump treatment and after three months, PWD completed validated questionnaires in the MIND online tool: the WHO-5 well-being Scale and the Problem Areas in Diabetes Scale (PAID).

The interventions consisted of four days (20 hours) of group education, which was patient-centred and based on the empowerment philosophy and carried out by a multidisciplinary diabetesteam: diabetes nurse specialist (DNS), dietician and diabetologist. The PWD had individual consultations by all members in the diabetesteam. With scores of  $>40$  on PAID, indicating high diabetes distress, PWD were offered intensive consultations with the DNS and/or referring to the psychologist. With scores on WHO-5  $<50$  indicating likely depression, PWD were offered intensive consultations with DNS and/or referring to general practitioner for screening for depression.

**Results:** At baseline, 26.3% ( $n=99$ ; female: 18) had scores of  $>40$  on PAID indicating high diabetes distress, and 30.3% had scores on WHO-5  $<50$  on well-being (female: 20) indicating likely depression.

After three months, 0% of PWD with insulinpump ( $n=22$ ; female: 15) had high diabetes distress, and 0% had scores on WHO-5  $<50$  on well-being indicating likely depression.

**Conclusion:** Despite the small number of follow-up participants, the multidisciplinary interventions indicate significant effects on diabetes distress for PWD starting insulinpump treatment, resulting in higher levels of well-being and quality of life, and no one is at risk of depression.

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## THE USE OF MOBILE APPLICATIONS FOR DIABETES SELF-MANAGEMENT (DSM). DOES GENDER MATTER?

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### Background

Mobile applications have an impact on DSM education and support. Studies have shown that the use of applications significantly lowers HbA1c levels, reduces weight, and have a positive effect on health behaviour. With more than 1100 diabetes related mobile applications, it is difficult to find an appropriate application for healthcare professionals (HCP) to recommend for different aspects of DSM. An overview of which type of applications people with diabetes (PVD) are currently using for DSM is needed, and to investigate if there is differences in which type of applications men and women choose.

### Aim

The aim of this pilot study was to examine which types of applications PVD find supportive, and use continuously for different aspects of DSM, and if gender influences the choice.

### Method

An online survey questionnaire. 25 closed ended questions addressing the choice of application for DSM support, duration of use, and demographic data. With each question you could add a comment and application names. A link to the survey was posted on Social Media in diabetes online communities. The questionnaire was open for 3 month. The survey was filtered to avoid multiple people answering from the same device. For the analysis univariate and multiple linear regression was used.

### Result

65 people answered the questionnaire, mean age 39 +4,2 years. Male 51%, type I diabetes 74%, mean diabetes duration 10 +2.7 years. Eight different types of applications were chosen for DSM. 77% found that the applications improved DSM, 80% used them longer than 3 month. Differences in use between men and women were identified. Men used applications for carbohydrate counting, interoperability, networking/online community support, logbooks, calculation of insulin dosage and information about diabetes. Women used applications for mealplanning, weightloss, and exercise more than men.

### Conclusion

The results indicate that specific topics are requested in mobile applications used continuously for at least three month for DSM. The needs differs between men and women and the choice of application differs between men and women. Future studies will investigate these findings further.

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## DIABETES E-HEALTH INTERVENTION MAY DISRUPT THE PATTERNS OF NURSE-PATIENT COMMUNICATION IN PRIMARY CARE

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**Background:** In health services worldwide, electronic health technologies have been endorsed as tools for dealing with the rising numbers of people with type 2 diabetes. Technology itself, however, will not transform support and counselling of patients without the participation of healthcare practitioners who have the knowledge and skills to effectively practice under this new digital paradigm of patient care. Research addressing counselling of people with type 2 diabetes in electronic settings by healthcare practitioners is limited and seems to lack the perspectives of nurses.

**Aim:** To explore diabetes nurses' experiences conducting an eHealth intervention for adults with type 2 diabetes in general practice.

**Method:** This study has a descriptive, qualitative design. The data were collected by means of individual interviews with four diabetes nurses in general practice. Data were analysed using the Interpretive Description strategy. The eHealth intervention was based on guided self-determination, and was adapted for people with type 2 diabetes as an eHealth intervention via secure messaging in general practice. The intervention consisted of four eConsultations conducted over a period of 12 to 35 weeks. The purpose was to guide both people with type 2 diabetes and diabetes nurses through mutual reflection. Four themes were included in the reflection sheets: your life with diabetes, focus for change, work with changes, and changes in daily life.

**Result:** Preliminary analysis indicates that the diabetes nurses' conventional communicative approaches were disrupted when conducting the electronic guided self-determination intervention and the nurses would have preferred face-to-face counselling with their patients. The analysis resulted in identification of the following three dimensions: 1) stripping away the familiar setting, 2) making processes transparent, and 3) creating space for reflections.

**Conclusion:** The preliminary findings provide useful information for understanding how diabetes eHealth intervention may disrupt the patterns of nurse-patient communication in primary care. In addition, findings indicate that this disruption in communication was both constructive and non-constructive. The results may have important implications in the process of implementing eHealth intervention for people with type 2 diabetes in primary care.

**16 ORAL****IMPACT OF A THERAPEUTIC EDUCATION PROGRAM ADDRESSED TO PATIENTS TRANSFERRED FROM A PEDIATRIC TO AN ADULT DIABETES UNIT.**

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**Background**

Type 1 diabetes (T1D) is difficult to control in adolescents. This period coincides with the transfer of these patients from a paediatric to an adult centre.

**Aim**

To evaluate the mid-term impact of a specifically designed Therapeutic Education Program (TEP) on metabolic control, self-management and quality of life (QoL) 1 year after the transfer of T1D patients from a pediatric to an adult diabetes Unit.

**Methods**

We included subjects with T1D consecutively transferred from a pediatric to an adult diabetes unit between 2005 and 2016. The TEP integrated a co-ordinated transfer between the Units, individual visits and group sessions. At baseline, we registered data on BMI, insulin dose, type of insulin treatment, HbA1c and the frequency of hypoglycaemia. For evaluation of the quality of life (QoL) and knowledge in T1D management, self-report questionnaires were assessed. Mother tongue (spanish and catalan versions) validated Clarke's test was used to evaluate hypoglycaemia awareness. After 12-months, all subjects were re-evaluated.

**Results**

225 of 330 patients (HbA1c  $8.60 \pm 1.40$  %) completed the TEP (68%), with no changes in HbA1c values ( $8.30 \pm 1.40$  vs.  $8.20 \pm 1.40$ ). Severe hypoglycaemia episodes/patient/year reduced from  $0.31 \pm 0.95$  to  $0.05 \pm 9.34$  ( $p < 0.001$ ), and patients with  $>5$  hypoglycaemia episodes/week decreased from 6.8% to 3.9% ( $p = 0.089$ ). The percentage of patients with Clarke test  $>3$  fell from 18.6% to 11.2% ( $p = 0.5$ ). 61% of the youths attended the group course. Diabetes knowledge rose from  $25.7 \pm 3.6$  to  $27.8 \pm 3.8$  ( $p < 0.001$ ), and Diabetes QoL improved (DQoL1  $30.1 \pm 8.5$  vs  $29.8 \pm 8.7$ ;  $p < 0.001$ , DQoL2  $30.1 \pm 8.8$  vs.  $29.4 \pm 7.1$ ;  $p < 0.001$ , DQoL3  $14.1 \pm 9.6$  vs.  $12.8 \pm 4.3$ ;  $p = 0.019$ , DQoL4  $8.2 \pm 3.36$  vs.  $7.9 \pm 2.6$ ;  $p < 0.001$ ). A higher HbA1c at baseline ( $p = 0.014$ ) and the participation in group sessions ( $p = 0.045$ ) were related to a significant improvement in HbA1c (difference 0.5%).

**Conclusions**

The use of a specific transition TEP from a pediatric to an adult diabetes unit reduced severe hypoglycaemic episodes and improved Diabetes related quality of life without worsening metabolic control. Some strategies are needed to improve the proportion of patients completing the full TEP in order to further improve these outcomes.

**17****IMPACT ON GLYCAEMIC CONTROL OF A THERAPEUTIC EDUCATIONAL PROGRAMME TO OPTIMIZE INSULIN PUMP TREATMENT IN TYPE 1 DIABETES**

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**Background:** Around 30-40% of type 1 diabetes patients (T1D) initiating continuous subcutaneous insulin infusion (CSII) due to poor metabolic control cannot maintain the short/medium term improvement obtained over the long term.

**Aims:** To determine the impact on metabolic control of a therapeutic educational programme (TEP) in T1D patients on CSII (TEP-CSII-Optimization) and analyse the difficulties/barriers for optimizing control.

**Methods:** T1D patients on CSII  $>5$  years with HbA1c  $>8\%$  were included. TEP-CSII-Optimization included 4 visits: on a weekly basis during the first month in a 4-patient group (2h/session). An interdisciplinary team evaluated the difficulties/barriers and improvement proposals to achieve optimum control. The topics identified and the specific knowledge and skills for CSII treatment self-management were assessed. Specific technological support allowed personalized schedules and modification algorithms. The variables studied were: demographic, T1D duration and time with CSII, reasons for initiation of CSII and the TEP-CSII-Optimization programme, metabolic control, perception of hypoglycaemia (Clarke test), T1D knowledge (DKQ2 questionnaire) and quality of life (DQoL questionnaire). The parameters were evaluated at 6 months.

**Results:** 22 patients were included (63% women, age  $49 \pm 13$  years); T1D duration:  $25.4 \pm 9.2$  y; time on CSII:  $8.7 \pm 3.7$  y; Reasons for CSII initiation: poor control (77%), severe/frequent hypoglycaemias (5%) and both (18%). Reasons for inclusion in TEP-CSII-Optimization: poor control (57%), severe/frequent hypoglycaemia (19%) and both (24%); baseline HbA1c  $8.4 \pm 0.65\%$ . Two patients had presented severe hypoglycaemias in the previous 2 years. 21% had impaired hypoglycaemia awareness (Clarke  $>4R$ ). T1D knowledge:  $29 \pm 4$  (maximum DKQ2 score 35). DQoL: satisfaction 35.5; impact 30.6; social concern 3.2; T1D concern 8.3. The most frequent difficulties/barriers identified were: insecurity with algorithms; carbohydrate meal calculations; lack of adherence to downloading data for analysis; lack of adaptation to physical exercise. At 6 months HbA1c improved by  $-0.5\%$  ( $7.9 \pm 0.58\%$ ,  $p = 0.014$ ). The level of knowledge ( $p = 0.12$ ) and the perception of hypoglycaemia ( $p > 0.05$ ) did not change. The QoL satisfaction scale significantly improved ( $p = 0.047$ ).

**Conclusions:** The TEP-CSII-Optimization programme is effective for short-term improvement in T1D patients with poor glycaemic control on CSII. The difficulties/barriers identified allowed proposals for programme improvement.

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## DETERMINATION OF PHYSICAL ACTIVITY BEHAVIORS AND WELL-BEING OF PATIENTS WITH DIABETES

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### Background

Exercise has positive effects on cardiovascular system, metabolism and also mental state. Regular exercise enhances not only glycemic and metabolic control, but also providing the patients to feel themselves better.

### Aim

This cross-sectional study was conducted to determine the physical activity behaviors, well-being of patients with diabetes and also affecting factors.

### Methods

The study was conducted 117 patients with diabetes attending a diabetes policlinic of an university hospital between September 2015 and May 2016. A "Questionnaire Form", "Exercise Motivation Questionnaire (EMQ)", "Exercise Behavior Questionnaire (EBQ)" and World Health Organization-(Five) Well-Being Index (WHO-5) were used for data collection. The data were evaluated percentage, mean, chi-square and variance analysis.  $p < 0.05$  value was accepted as statistically significant.

### Results

The mean age of the patients was  $61,92 \pm 13,05$  years, 52.1% were male, 78.6% were married, nearly half of them were primary school graduates, 41% were housewives, 82.9% of them did not work, 76.1% had middle income, and 57.8% had type 2 diabetes. It was found that 68.4% of patients had chronic complications, and 64.1% had taken education about diabetes. It was determined that 29.9% of the patients climbed stairs, 14.5% walked fast in temp 13.7% of them were interested in gardening work.

The mean score of the WHO-5 was  $10.35 \pm 6.14$  and the mean score of EMQ was  $24.44 \pm 7.95$ . Patients who were self-employed had higher WHO-5 score than that of housewives ( $p < 0.05$ ). No difference was found between the mean scores of WHO-5 and EMQ and education, income, marital status, working status, type of diabetes, presence of chronic complications, taking education about diabetes ( $p > 0.05$ ).

There was a statistically significant negative correlation between the age of the patients and the EMQ mean scores ( $r_s = -0,263$ ,  $p = 0,004$ ). No statistically significant correlation was found between the mean scores of WHO-5 and EMQ.

### Conclusion

Patients had lower exercise behaviors. They had middle level of WHO-5 and EMQ scores. We recommend the development of training programs to improve exercise motivation and behavior of patients with diabetes..

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## HOW DO VALUES AFFECT SELF-CARE OF TYPE 2 DIABETES PATIENTS? RESULTS FROM A MULTI-CENTRE OBSERVATIONAL STUDY

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### Background

Available self-care theories and qualitative research has identified values as an important influence on self-care in type 2 diabetes (T2DM) patients. However, values have never been quantitatively described in the T2DM population and the association between values and self-care has not been assessed.

### Aims

To investigate the association between values and self-care in adults with T2DM.

### Methods

A cross-sectional multicentre study was conducted in 6 outpatient diabetes services in a sample of 390 Italian T2DM patients. The Portrait Values Questionnaire (PVQ) was used to assess patients' values, according to the Schwartz's Theory of Basic Human Values. The PVQ measures 4 value dimensions in opposition: Self-Enhancement Vs Self-Transcendence, and Openness to Change Vs Conservation. A centred score is used to estimate individual priority between these dimensions; a positive score in one dimension means that this dimension is prioritized by the individual over the opposite one. The Self-care of Diabetes Inventory was used to measure self-care maintenance, self-care



monitoring, self-care management and self-care confidence, according to the middle-range theory of self-care of chronic illness. Multiple quantile regression models were used to assess the associations between the 4 value dimensions and the 4 self-care dimensions, adjusting for clinical and sociodemographic variables.

#### Results

The higher value dimensions were Self-Transcendence (centred score= 0.4) and Conservation (centred score= 0.3) while the lower were Self-Enhancement (centred score= -1.1) and Openness to Change (centred score= -0.1). Self-Enhancement was negatively associated with self-care maintenance (beta=-2.4; p=0.0085) and self-care monitoring (beta= -5.4; p=0.0005). Openness to Change was (borderline) negatively associated with self-care management (beta=-3.9; p=0.06).

#### Conclusions

T2DM patients who value self-enhancement and openness to change may be less likely to adopt self-care behaviours than those who value conservation and self-transcendence. Interventions designed to maximize the values of conservation and self-transcendence may improve the self-care of T2DM patients.

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### KNOWLEDGE AND BEHAVIORS OF PATIENTS WITH DIABETES TOWARDS FOOT CARE

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#### Background

Diabetic foot wounds are one of the most important complications of diabetes, causing physical, psychological, social and economic problems and also increasing the morbidity and mortality risk.

#### Aim

The aim of this study was to determine the knowledge and behaviors of patients with diabetes towards foot care.

#### Methods

This study was conducted in face-to-face interviews with 196 patients with diabetes admitted to a public hospital's internal medicine clinics between April- September 2016. Data was collected both by a "Patient Information Form" and an "Evaluation Form for Foot Care, Knowledge and Behavior of Individuals with Diabetes" that was based upon literature. A value of p <0.05 was considered statistically significant.

#### Results

It was determined that patients' characteristics such as older age, male gender, lower education, high body mass index, smoking, unemployment, retirement, having a long diagnosis period, presence of additional chronic illness, having diabetes complications and using additional medications were increased the risk of diabetic foot. As the patients' age and body mass index decreased and the education level increased, their "Foot Care Knowledge and Behavior" scores increased too. Additionally, it was found that patients who had an employment, were office worker, had an income equal to or higher than expenditure, lived in a city center, had type I diabetes, did not have any other chronic disease and any other diabetes complications, did not use additional medicine, and had foot care information before, had higher "Foot Care Knowledge and Behavior" scores. It was determined that patients with higher Foot Care Knowledge and Behavior scores had lower risk of diabetic foot. While most of the patients with diabetes had correct knowledge and behavior on foot hygiene, nail care, shoe and sock preferences; they had lack of adequate knowledge and behaviors about foot leg exercises, foot care and foot examination.

#### Conclusion

Patients with high scores of "Foot Care Knowledge and Behavior" had lower risk of diabetic foot. As a result, it is very crucial that patients' foot and knowledge and behaviors on foot care should be regularly evaluated. They should be reinforced to take regular education through on foot care.

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## HEALTH STATUS, SELF-MANAGEMENT, SOCIAL SUPPORT, AND SOCIAL BURDEN, IN PEOPLE WITH TYPE 1 AND TYPE 2 DIABETES, AND INFORMAL CARERS, IN PORTUGAL

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APDP - Diabetes Portugal (Education and Research Centre - APDP/ERC)

### Background

The human and social burden of diabetes is escalating worldwide. Although modern medical therapies for diabetes are available in many countries, the majority of people with diabetes still fail to achieve optimal health and well-being.

### Aim

The aim was to benchmark Portugal on the DAWN2-Diabetes, Attitudes, Wishes and Needs, in order to determine Portugal's comparative position for health status, healthcare provision, self-management and social support from the perspective of people with diabetes, family members of people with diabetes and healthcare professionals.

### Method

In Portugal, a total of 900 adults including 500 people with diabetes: 80 with T1D and 420 with T2D; those with T2D were stratified by treatment, 120 family members and 280 healthcare professionals are participating in the study. Surveys assess health-related quality of life, self-management, attitudes/beliefs, social support and priorities for improving diabetes care. Data on healthcare provision, and physical and psychosocial wellbeing was collected and compared from the other 18 countries participating in the DAWN2 study. All scales were translated and validated for the Portuguese population.

### Result

So far, data was collected from 8596 adults with diabetes across 18 countries. Preliminary results from Portugal, obtained from 132 persons with diabetes (27% T1D and 73% T2D) and 40 informal carers, indicates that 20% of families report presently a moderate to very large burden in caring for one or more family members with diabetes. This relates to a range across other countries of 11–62%.

### Conclusion

DAWN2 study provides a first multinational, multidisciplinary systematic framework for the comparison of unmet needs of people with diabetes and those who care for them in 19 countries across four continents, including Portugal. Its findings may facilitate innovative efforts by all stakeholders to improve self-management and psychosocial support in diabetes, thus improving acceptance of change, reducing the feeling of being overwhelmed and reducing the burden of disease in people with diabetes.

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## ASSOCIATIONS BETWEEN ALCOHOL CONSUMPTION AND HEALTH-RELATED QUALITY OF LIFE AMONG DANISH PATIENTS WITH TYPE 2-DIABETES

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**Background:** High alcohol consumption in patients with type 2 diabetes (T2D) is associated with reduced adherence to diabetes treatment, which may result in a worsened prognosis with increased complications. The patients' alcohol consumption may potentially influence their quality of life and self-rated health predicting their prognosis.

**Aim:** To describe alcohol consumption among patients with T2D, and to investigate whether alcohol consumption is associated with health-related quality of life (HRQOL), self-rated health, and glycaemic control.

**Methods:** This study represents baseline data from a study of patients with T2D with intermediate risk of, or already having incipient diabetic complications. The questionnaire used was The Short-Form (SF-36) Health Survey and information on demographics and lifestyle was collected. Data are presented as means with 95 % confidence intervals (CI) and  $p < 0.05$  was considered significant.

**Results:** A total of 140 participants received the questionnaires and 128 responded. The mean age of the participants was 65.2 (63.4–67.0) years (men 73%). The average alcohol intake was 7.2 (5.6–8.8) units/week. According to the recommendations of the Danish Board of Health, 110 participants were drinking within the low-risk limits (females 7, males 14 units/week), seven were drinking between the low- and high-risk limits (females 8–14, males 15–21 units/week) and 11 were drinking above the high-risk limits (females >14, males >21 units/week). There were no significant differences in HRQOL measured on mental and physical component summaries between the three groups. Compared to patients drinking within the low-risk limits, participants drinking above the high-risk limits reported significantly lower scores on the subscales of vitality ( $p = 0.005$ ), mental health ( $p = 0.043$ ) as well as poorer self-rated health. Patients in good glycaemic control (HbA1c <53 mmol/mol) reported a higher weekly alcohol intake vs. patients with HbA1c  $\geq 53$  mmol/mol: 8.9 (6.5–11.2) and 4.8 (2.9–6.6) units/week respectively ( $p = 0.011$ ).

**Conclusions:** In this population of patients with T2D, alcohol usage above high-risk limits was associated with lower vitality and mental health as well as poorer self-rated health. However, we found moderate alcohol consumption to be associated with good glycaemic control.

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### FACTORS ASSOCIATED WITH THE DISCONTINUATION OF TREATMENT WITH SUBCUTANEOUS INFUSION OF INSULIN IN ADULTS WITH DIABETES T1

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#### Objectives

To analyze factors related to discontinuation of treatment with CSII in a group of 114 patients attending our centre during a period of 14 years.

#### Material and methods

Descriptive and retrospective study of patients treated with CSII during the period 2002—16 in whom a discontinuation of CSII was registered. The characteristics of the patients, their outcomes, and the causes of the CSII discontinuation.

#### Results

At the onset of CSII, the average age was  $35 \pm 12$  years with a diabetes duration of  $13.9 \pm 8.9$  years, body mass index (BMI)  $24.1 \pm 6.5$  kg/m<sup>2</sup> and a HbA1c 9.6% (7.5—10.4%). A total of 19 patients discontinued CSII. In 26.3% of cases discontinuation was during the first three years, another 26.3% between 3-6 years and 47.3% of patients after more than 6 years. 63% were women and the average time of duration of treatment was 5.5 years, BMI was  $25.8 \pm 7.6$ , HbA1c was of 7.7% (6.9-9.3). The reasons for discontinuation were two deaths, twelve patients were re-evaluated (in 6 of them initial objectives were not achieved, two developed severe lipodystrophies, two presented problems with the infuser, one patient underwent a pancreas transplantation and another one bariatric surgery). In the five remaining cases discontinuation was a patient decision (three for interference with the activities of daily life and two for not achieving the theoretical expectations). On the year of suspension, the HbA1c changed from 7.6% to 8.1% ( $p=0,22$ ). In the subgroup of suspension for medical reasons the HbA1c varied from 7.7 to 9% ( $p=0,35$ ) whereas in the subgroup of patient decision suspension HbA1c changed from 7.6% to 7.8% ( $p=0,75$ ).

#### Conclusion

The discontinuation rate was relatively low in the first years of treatment with CSII, but a significant increase was observed in the sixth year. The main reason was due to medical decision due to the lack of achievement of recommended objectives.

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### PERCEPTIONS OF PEOPLE WITH TYPE 2 DIABETES RELATING TO SUBCUTANEOUS THERAPY

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APDP - Diabetes Portugal (Education and Research Centre - APDP/ERC)

#### Background

People's perceptions about medication are very important in the process of diabetes' acceptance, because the representations can interfere at therapeutic actions' adherence.

#### Aim

To compare the receptivity of people with type 2 diabetes (DM2) who start subcutaneous auto-administration of Insulin, Exenatide and Liraglutide.

The study includes people with DM2, followed at the institution, who have no previous experience with self-administration of subcutaneous therapy.

#### Method

The data collection was performed through an oral questionnaire, completed by the nurse at the end of the consultation, after the person tried the self-injection for the first time.

A quantitative analysis of the data was performed.

#### Results

Participants characterization: 114 people with DM2, male 61 (53.5%), female 53 (46.5%), mean age of  $59.6 \pm 11.5$  years, mean HbA1c  $9.7 \pm 2.1\%$ .

80 people (70.2%) started insulin, 24 (21%) Liraglutide and 10 (8.8%) Exenatide.

51.4% of the participants considered that self-injection could decrease their adherence to the new drug and 48.6% said no.

From the participants who answered that self-injection could decrease their adherence 96.4% started insulin and 3.6 % Liraglutide. The reasons are: Being a lifelong medication 56.8%, Phobia of needles 16.2%, Dependency 10.8%, Administration less comfortable than oral 8.1% and Sting pain 8.1%.

About the administration technique, 42.1% consider it is accessible, 40.4% easy, 10.5% difficult and 7% very easy.

#### Conclusions

Most people who started insulin think that self-injecting may decrease treatment adherence.

All persons who started Exenatide considered that self-injection did not interfere with their adherence, (the only weekly administration medication).

Only 3% of people who initiated Liraglutide reported that subcutaneous administration of Liraglutide may decrease treatment adherence.

Most participants consider the subcutaneous administration technique accessible and easy.

These results may be related to the myths that still exist about insulin therapy. It is planned to continue this study to confirm this possibility.

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## THE EFFECT OF HYPOGLYCEMIA EDUCATION PROGRAMME ON PREVENTION AND TRETMENT OF HYPOGLYCEMIA IN PEOPLE WITH TYPE 2 DIABETES USING INSULIN

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### Background

Hypoglycemia is a major problem that can be seen in all people with diabetes, especially insulin users. In the literature, it is seen that 15-25% of individuals with type 2 diabetes have hypoglycemia and that the structured education for hypoglycemia they receive is inadequate.

### Aim

This study aimed to assess the effect of Hypoglycemia Education Programme (HEP) structured with interactive sessions for people with type 2 diabetes using insulin on prevention and management of hypoglycemia.

### Method

The subjects were 18-65 years old, with type 2 diabetes mellitus, using insulin, having had hypoglycemia at least once before (n=101). Patients were randomly divided into training (n=51) and control (n=50) groups. The training group was educated in the HEP (one-day-training) and followed by the individual appointments at the first, third and sixth months. For the control group, the same checks were made during the first, third and sixth months following the initial assessment without training. Glucometers, test strips and diaries were given to all patients in both groups to measure blood glucose. Patient assessment form, Gold Hypoglycemia Scoring, Clarke Hypoglycemia Questionnaire and Hypoglycemia Fear Survey were used to assess hypoglycemia. Plasma glucose, HbA1c were measured. Data analysis was done via SPSS 11.5.

### Results

Hypoglycemia awareness improved significantly in training group than control group (p=0.006). After the HEP training, hypoglycemia fear decreased (p<0.001), worry score for hypoglycemia was lower (p<0.001) and hypoglycemia management behaviours improved (p=0.001) in training group in 3rd and 6th month. HbA1c of training group was lower than control group after 6 month (-1.47% change, p<0.001).

### Conclusion

HEP which is interactive group education programme based on the needs and hypoglycemia experiences of patients with type 2 diabetes using insulin and focuses on prevention and management of hypoglycemia improved the hypoglycemia management and glycemetic control, decreased the hypoglycemia fear. HEP is recommended to be used in the similar groups as specific to hypoglycemia and structured programme.

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## GLYCAEMIC INDEX OF BREAD FROM TARTAR BUCKWHEAT IN CONNECTION TO DIABETES TYPE 2

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### Introduction

Diabetes type 2 patients (DT2) are recommended to eat low glycaemic index (GI) foods, containing lots of fibres, including also tartar buckwheat (*Fagopyrum tataricum* Gaertn.).

### The problem

while doing the research, we could not find the information on glycaemic index (GI) of bread from tartar buckwheat and dietary credentials for diabetes patients.

### Methods

We wanted to determine the GI of the tartar buckwheat bread containing 50% tartar buckwheat flour. We were coming out from the standardized procedure for determining glycaemic index of foods that is based on sampling the glucose in blood (GB) 15, 30, 45, 60, 90 and 120 minutes after consumption. To be able to compare, we needed the tartar buckwheat bread and a reference food – white bread with sharp flour type 400 and 10 healthy participants. Because of the results, we have subsequently decided to also determine the glycaemic index of bread, where we instead of flour added tartar buckwheat porridge. To even out the amount of proteins and fats of all foods, we added whey proteins and refined edible sunflower oil. Wheat bread contained 50 g OH per person, as well as bread with tartar porridge and bread made from 50% tartar buckwheat.

### The results

Glycaemic index of bread made from 50% tartar buckwheat flour totals 118, while glycaemic index of bread made from 50% tartar buckwheat porridge is 76 after 120 minutes.

### Conclusion

GI of bread made from buckwheat is higher than expected. Because of the increase of glucose in blood in healthy population, we recommend tartar buckwheat flour products to diabetes patients DT2 only in moderate amounts. The findings show that the size of parts significantly influences the increase of glycaemia in blood, since GI of bread with 50% tartar buckwheat porridge was considerably lower (64%) from the bread containing 50%

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## STRUCTURED HYPOGLYCEMIA EDUCATION PROGRAMME IMPROVED QUALITY OF LIFE AND DECREASED DEPRESSION IN INSULIN USERS WITH TYPE 2 DIABETES

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### Background

It is reported that the experience of hypoglycemia and increase in its frequency and severity affects the quality of life and depressive mood negatively in people with diabetes. Available diabetes education programmes don't have sufficient focus on these specific needs in the specific groups such as insulin users with type 2 diabetes.

### Aim

This randomized controlled study evaluated the effectiveness of newly prepared Hypoglycemia Education Programme (HEP) addressing hypoglycemia prevention and management in people with type 2 diabetes using insulin on quality of life and depression.

### Methods

Adults with type 2 diabetes who were treated with conventional or basal-bolus insulin therapy and had hypoglycemia at least once before (n=101) randomly divided to intervention (n=51) and control (n=50) groups. The intervention group was trained in a day programme called as HEP having 7 sessions. Each session, nutrition, exercise and insulin therapy and SMBG were prepared for the purpose of preventing and managing hypoglycemia in type 2 diabetes using insulin. HEP was implemented with the interactive group discussions based on the patient empowerment model. Audiovisual tools including videos and Diabetes Conversation Maps were used during the training. Both groups were evaluated at first, third and sixth month following the initial assessment. Patient Health Questionnaire (PHQ-9) and EQ-5D were used for assessing depression and quality of life. Data was analyzed with SPSS 11.5 and significance level was accepted p <0.05.

### Results

After implementing HEP, quality of life (both VAS and index scores) improved significantly in intervention group than control group at 3rd and 6th month (p=0.03 and p=0.01, consecutively). PHQ-9 scores were similar in both groups in initial assessment and decreased at 6th month in intervention group that explores the decrease of depression (p=0.02).

### Conclusion

The data showed the positive effects of HEP on improving quality of life and decreasing the depression. HEP could be offered as an effective education programme for adults with type 2 diabetes using insulin.

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## ADHERENCE TO TREATMENT MANAGEMENT AMONG ADOLESCENTS WITH TYPE 1 DIABETES IN CROATIA

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### Background

Although they are aware of the risk of long-term complications, adolescents with type 1 diabetes (T1D) are often prone to unsatisfactory glycemic control and nonadherence to treatment recommendations.

### Aim

To evaluate the prevalence and reasons for insulin omission during adolescence.

### Methods

Randomly selected 104 adolescents (64 female/40 male; age 11-19 years, mean duration of diabetes 6.2 years) with T1D, treated at the Department of Pediatrics University Hospital Center Zagreb, completed the questionnaire evaluating frequency and reasons for insulin omission.

### Results

Altogether, 40,38% (42/104) patients regularly gave insulin for meals, 26,92% (28/104) omits insulin less than once per month, 23,09% (24/104) omitted insulin few times per month and 9,61% (10/104) omitted insulin several times per week. For correction of hyperglycemia 50,96% (53/104) patients gave insulin regularly, 23,07% (24/104) omitted correction less than once per month, 22,12% (23/104) omitted insulin corrections few times per month and 3,85% (4/104) omitted several times per week. There was no significant difference in meal treatment adherence among girls and boys, but girls significantly more often omitted insulin corrections ( $\chi^2=6,13, p<0,05$ ). Most frequent reason for skipping insulin is that they forgot to give an injection. Girls more often reported that they didn't want to give insulin shots in front of the others (18% vs. 4%), but the difference did not reach statistical significance. Patients with HbA1c<8% are significantly more regular in insulin application than patients with HbA1c>8% (meal adherence:  $\chi^2=13,62, p<0,01$ , corrections:  $\chi^2=11,48, p<0,01$ ).

### Conclusion

Occasional insulin skipping is frequent among adolescents with T1D and is associated with worse metabolic control. Girls are more prone to insulin omissions and might be more likely to feel distressed when giving insulin shots in front of the others. Therefore, during initial education as well as during follow-up visits the importance of treatment adherence should be emphasized. Additional psychological support should be provided to patients with difficulties in acceptance of their disease

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## CHOOSE HEALTH: A COMMUNITY APPROACH TO BREAKING THE CYCLE TOWARDS TYPE 2 DIABETES IN YOUNGSTERS

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### Introduction

In Portugal, more than 30% of young people are obese or overweight. The increase of the sedentary lifestyle is due to the preference towards spending an excessive number of hours watching television, computer games, and other digital technologies, and inability to make informed healthier food choices.

### Objectives

The aim is to promote healthy eating and exercise, as well the adoption of a healthy lifestyle, thus eliminating risk factors that contribute to the development of type 2 diabetes (T2D).

### Methods

56 adolescents (12 and 14 years) were recruited. Participants were divided in two groups: control group and intervention group, and asked to fill questionnaires regarding nutritional, physical activity, sedentary and knowledge behaviors, and daily physical activity and sedentary behavior were monitored for a week. In the control group, a single session was performed. In the intervention, group sessions were held where it was possible to understand social determinants and the behaviors related to health and self-perception of the young people, evaluated through content analysis and debate.

### Results

In the adolescents' perspective, being healthy is having a healthy diet (eat vegetables, drink more water, and avoid fast food), practicing physical exercise, performing personal hygiene, not having diseases and being happy. The adolescents reported 26.8% excellent, 34% very good, 34% good, 2.4% satisfactory and 2.4% poor on their self-perception how healthy they felt. 29% of the adolescents responded that it was recommended for a teenager to be active every day for one hour a day and 53.7% said it would be appropriate for a teenager to watch television less than two hours a day.

### Conclusion

The increase of sedentary lifestyle among Portuguese adolescents, and consequently the observed rise of T2D, makes essential to implement community programs that identify barriers to the adoption of healthier lifestyles and that motivate young people to reflect on their health, preventing risk behaviors and increasing their quality of life.

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## EXAMINING THE PREVALENCE OF DIABETES-RELATED DISTRESS IN WOMEN WITH DIABETES IN PREGNANCY

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### Background

Diabetes-related distress (DRD) is the measure of emotional burden associated with managing diabetes and has been shown to negatively impact self-management practices, coping, and glycemic control. Women with pre-existing diabetes (type 1 and type 2 diabetes) may be at a greater risk for distress-related distress during pregnancy, however the true burden of this problem has not been well-established.

### Aim

The aim of this study was to examine the prevalence of DRD and depressive symptoms in a cohort of women with pre-existing diabetes in pregnancy.

### Methods

This cross-sectional study was conducted in the Maternal Fetal Medicine Clinic at the McMaster University Medical Centre, Hamilton Health Sciences in Hamilton, Ontario. DRD was measured using the validated Problem Area in Diabetes (PAID) Scale. Patients who were least 18 years of age, diagnosed with type 1 diabetes (T1DM) or type 2 diabetes (T2DM), and at any trimester of pregnancy were recruited.

### Results

56 women participated (mean age 31 years; 50.0% T1DM, 50.0% T2DM; mean hemoglobin A1C 7.0%; mean gestational age 22 weeks). The mean PAID score was 26.6 and the prevalence of distress (PAID score  $\geq$  40) was 21.4% for all women. Both groups reached similar distress scores (T1DM = 26.6; T2DM = 25.4) and there was no significant difference in rates of distress between groups ( $X^2 = 1.70, p=0.19$ ). Younger patients had higher diabetes-related distress scores ( $r = -0.41, p < 0.00$ ).

### Conclusion

The prevalence of DRD was similar to rates of distress reported in adults with diabetes. Women with T2DM showed equal amounts of distress as women with T1DM. Future work will include conducting qualitative interviews to understand the study findings of distress and explore perceptions of DRD.

# Conference Dinner

Friday 8 September

1930 Pre Dinner Cocktails

2000 Dinner

*Venue:*

Restaurant Estufa Real, (Botanical gardens)

Calcada do Galvão, 1400-171 Lisbon

*Transport:*

Buses from Olissippo Oriente hotel



FEND Award		
1999	T. Birdsall	UK
2000	D. Weisman	Israel
	P. Nikkanen	Finland
2001	A. Joergensen	Denmark
2002	A. Munzinger	Germany
	B. Osterbrink	
	C. Nonn	
2003	M. Vidal	Spain
2004	P. Banck-Petersen	Denmark
2005	E. Turner	UK
2006	K. Alexandre	Switzerland
2007	S. Amsberg	Sweden
2008	M. Graue	Norway
2009	I. Lopes	Portugal
2010	A. Haugstvedt	Norway
2011	A. Faber	Netherlands
2012	S. Dereli Yilmaz	Turkey
2013	F. Bassin	Switzerland
2014	I. Tiberg	Sweden
2015	R. Forde	Ireland
2016	D. Ausili	Italy

# First Announcement

## 23rd FEND Annual Conference

28-29 September 2018

Berlin Germany

On behalf of the Foundation of European Nurses in Diabetes we cordially invite you to attend the 23rd Annual Conference of FEND

Kristin de Backer  
FEND Chairman

Anne-Marie Felton  
FEND President

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[www.fend.org](http://www.fend.org)  
[www.facebook.com/FENDnurses/](https://www.facebook.com/FENDnurses/)

**Dates for your diary**

**IDF Congress 2017**

4-8 December 2017  
Abu Dhabi UAE

[www.idf.org](http://www.idf.org)

**54th EASD Annual Meeting**

1-5 October 2018  
Berlin Germany

[www.easd.org](http://www.easd.org)

### LOCATION PLAN

