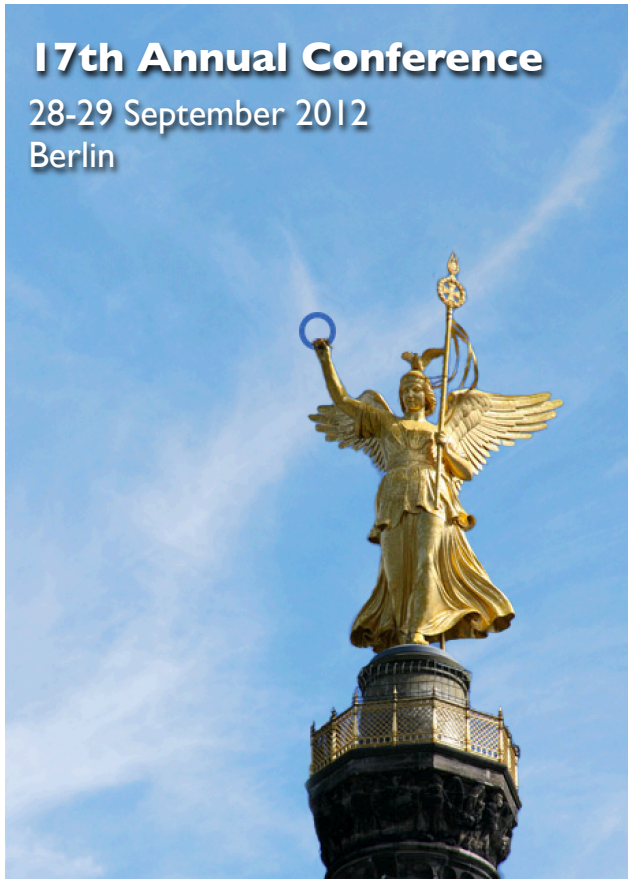
FEND

Foundation of European Nurses in Diabetes



unite for diabetes

Programme design and layout M J Felton

The Foundation of European Nurses in Diabetes acknowledges and thanks the following sponsors for their continuing support and commitment to FEND:

Abbott Diabetes Care
AstraZeneca & Bristol Myers Squibb
Bayer Diabetes Care
LifeScan
Lilly
Novartis
Novo Nordisk
Roche
Sanofi

ADDITIONAL CONFERENCE SUPPORT

We thank the pharmaceutical industries for their participation in the exhibition during the conference and European Diabetes Nursing (the official journal of FEND) and Practical Diabetes International for their reporting of this conference.

- **Post-conference online webcasts** *courtesy of Bayer Diabetes Care*
- **DESG Award** *courtesy of Diabetes Education Study Group*
- **Delegate name badges** *courtesy of Menarini Belgium*
- **Delegate bags** *courtesy of Novo Nordisk*

FEND Executive Committee

Kristin de Backer (*Membership & Conference Registrar*)	*Belgium*
Nadine van Campenhout (*Exhibition Co-ordinator*)	*Belgium*
Rosana Cisic	*Croatia*
Tineke Dijkstra	*Netherlands*
Anne-Marie Felton (*President & co-founder*)	*UK*
Selda Gedik	*Turkey*
Sijda Groen	*Netherlands*
Deirdre Kyne-Grzebalski (*Chairman*)	*UK*
Jacqueline Herbst	*Switzerland*
Unn-Britt Johansson	*Sweden*
Marianne Lundberg	*Sweden*
Chantal Montreuil	*Switzerland*
Johanna Rosenberg	*Finland*
Lurdes Serabulho	*Portugal*

Abstract Selection Committee

Prof Angus Forbes
Magdalena Annersten Gershater (Chair)
Claudia Huber
Chantal Montreuil
Seyda Ozcan
Prof Regina Wredling (co-founder)
Jane Robinson (Admin asst.)

FEND Special Advisors

Els Denis, Netherlands
Prof Sally Marshall, UK
Dr Colin McIntosh, UK
Dr Seyda Ozcan, Turkey
Prof Regina Wredling, Sweden (*co-founder*)
Ms Deirdre Cregan, Ireland (*co-founder*)

FEND Accountants

Kinnair & Company

FEND Honorary Members

Mrs Stina Wallenkrans (*co-founder*)
Ms Deirdre Cregan *(co-founder)*
Mrs Sue Hamilton (*co-founder*)
Dr Michael Hall

FEND Distinguished Service Award

Mrs Stina Wallenkrans (*co-founder*)

Local volunteer helpers (VBDB)

Michaela Berger	Barbara Knothe
Angela Ehlich	Kathrin Perschke

Pharmaceutical Exhibitors

Abbott	Menarini
Artsana	Mendor
Bayer	Novo Nordisk
Becton Dickinson	Roche
Lilly	Sanofi
Medtronic	Ypsomed

Non-Governmental Organisations

PCDE (Primary Care Diabetes Europe)
IDF Europe (International Diabetes Federation)
EURADIA (European Research Area in Diabetes)
IMAGE
DIAMAP

CONTENTS

Sponsors .....IFC
Mission Statement 2
Welcome 3
PROGRAMME 4-5
Plenary Abstracts 6-14
Speaker Biographies 15-17
Poster Abstracts 18-49
FEND & DESG Awards 50
Connecting Nurses 50
Next Conference 51
Conference Dinner 52
Location Plan .....IBC

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 sepecialist 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 to the FEND 17th Annual Conference and the city of Berlin.

The conference this year is multi-faceted reflecting the complexities and challenges of the diabetes epidemic in Europe.

The significant political recognition by the European Union of the impact of the diabetes pandemic is evident by the EU Parliamentary Resolution of March 2012. Such a significant resolution must ensure that this political commitment is realised in national health policies and all sectors of society.

FEND has played and will continue to play an active role in advocacy, policy development and implementation.

A key contribution by FEND is the FEND ENDCUP academic training programme led by Prof Angus Forbes. This programme is available to all members of FEND and it is noteworthy that the cost of this unique programme 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.

We thank our distinguished international speakers for their commitment and generosity of time. We thank Prof Andrew Boulton, President EASD for his courtesy and support in permitting this conference to be included in the programme of meetings on the occasion of 48th Annual Meeting of EASD.

We acknowledge with deep appreciation the support of our sponsors for all of FEND's activities and special thanks also to our FEND volunteers from VBDB, the German Association of Diabetes Nurses.

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.

Deirdre Kyne-Grzebalski
FEND Chairman

Anne-Marie Felton
FEND President

Friday 28 September 2012

0730	*Registration and Coffee*			
0845	Welcome and Opening Remarks	*FEND Chairman* *EASD President* *FEND President*	Deirdre Kyne-Grzebalski Prof Andrew Boulton Anne-Marie Felton	UK UK
		Session Chairs	Prof Regina Wredling Chantal Montreuil	Sweden Switzerland
0900	**Diabetes Nursing in Germany**		Elisabeth Schnellbächer *Chair VDBD*	Germany
0930	**A Theory of Care in Chronic Diseases**		Prof Gerard Reach	France
1015	**Oral Presentations 1-4:** **1.** (see page 18) **2.** (see page 19) **3.** (see page 20) **4.** (see page 21)		 Therese Anderbro Åsa Ernersson Maja Mlakar Dulce Nascimento do Ó	 Sweden Sweden Croatia Portugal
1115	*Refreshments & Exhibition*			
		Session Chairs	Rosana Cisic Sijda Groen	Croatia Netherlands
1145	**SWEET - Securing Appropriate Services and Infrastructure for Paediatric and Adolescent Diabetes in Europe**		Prof Thomas Danne	Germany
1215	**Optimum Care Pathways for End-Stage Kidney Disease in Type 1 & 2 Diabetes**		Prof Liam Plant	Ireland
1255	*Lunch & Exhibition*			
		Session Chairs	Marianne Lundberg Johanna Rosenberg	Sweden Finland
1400	**Redesigning the Intensive Clinic Model for Type 1 Diabetes**		Prof Angus Forbes & Assoc Prof Seyda Ozcan	UK Turkey
1430	**Type 2 Diabetes: Treatment with Incretin Therapy**		Prof Bo Ahren	Sweden
1500	*Refreshments & Exhibition*			
		Session Chairs	Jacqueline Herbst Lurdes Serrabulho	Switzerland Portugal
1530	**Eating Through the Myths: Food, Health and Happiness**		Prof Roy Taylor	UK
1600	**Primary Prevention of Diabetes - the IMAGE Effect**		Prof Peter Schwarz	Germany
1930 2000	**Pre Dinner Cocktails** **Conference Dinner**		Palais am Funkturm Masurenallee	

Saturday 29 September 2012

		Session Chairs	Nadine Van Campenhout Anne-Marie Felton	Belgium UK
0900	**The Policy Puzzle: Next Steps**		Anne-Marie Felton	UK
0930	**Focusing on Personal Understandings of Diabetes in Group Support**		Dr Åsa Hörnsten	Sweden
1000	**Masterclasses:** (parallel) **1. Prevention of Diabetes Foot Ulcers and Outcome** **2. Hypoglycaemia Awareness Toolkit** **Guided Poster Tour 1** (parallel)		 Dr Magdalena Annersten Dr Maggie Shepherd Chantal Montreuil Dr Seyda Ozcan	 Sweden UK
1115	*Refreshments & Exhibition*			
1145	**Masterclasses (Repeated):** **1. (as above)** **2. (as above)** **Guided Poster Tour 2** (parallel)		 Dr Magdalena Annersten Dr Maggie Shepherd Chantal Montreuil Dr Seyda Ozcan	 Sweden UK
1300	*Lunch & Exhibition*			
		Session Chairs	Unn-Britt Johansson Kristin de Backer	Sweden Belgium
1415	**Use of a Web Portal to Support Young Diabetes Patients and Families**		Dr Lena Hanberger	Sweden
1445	**Oral Presentations 5-8:** **5.** (see page 22) **6.** (see page 23) **7.** (see page 24) **8.** (see page 25)		 Alison Jeffery Margarida Jansà Stella Freund Marie Olsen	 UK Spain Croatia Sweden
1545	*Refreshments & Exhibition*			
		Session Chairs	Selda Gedik Tineke Dijkstra	Turkey Netherlands
1615	**The Genetics of Type 2 Diabetes: Nature or Nurture?**		Prof Graham Hitman	UK
1645	**Guidelines in Diabetes Management: the Missing Link of Personalised Targets and Care**		Prof Stephen Colagiuri	Australia
1715	**Awards Ceremony: FEND and DESG**		Deirdre Kyne-Grzebalski Anne-Marie Felton	UK UK
1720	Closing remarks		Deirdre Kyne-Grzebalski	UK

DIABETES NURSING IN GERMANY

Elisabeth Schnellbächer
Chair VDBD, Germany

The Diabetes Nurse is not considered to be a fundamental profession like the nurse, but is the product of further qualification and training on top of the basic one. Due to this ambiguity the origins of the Diabetes Nurse in Germany may vary. Several professions may educate their members to be a Diabetes nurse. An official recognition of their status has been found in 2011 by the DDG (German Diabetes Association) and partially by public institutions. The contents of the training are organized in modules, which encompass i.e. medical and pedagogic basics and statistics. Our members work in both stationary and ambulant facilities. Continuing training can be achieved through the acquirement of certificates provided by the VDBD (German Association of Diabetes Nurses).

A THEORY OF CARE IN CHRONIC DISEASES

Prof Gérard Reach
Head of the Endocrine, Diabetes, and Metabolic Diseases Department of Hospital Avicenne in Bobigny, France

Between the person who becomes ill and the health care provider (HCP) who takes care of her, an unusual relationship takes shape. The purpose of this talk is to analyze the double meaning of the concept of care in chronic diseases: care of oneself by the patient (self-care), patient's care by the HCP (care). I will try to show bridges between self-care and care.

First, self-care by patients: the patient takes care of herself if she is concerned for her future. The highest form of self-care is self-love. However, in some people, the onset of the disease leads to an ambivalence of the mind that prevents them to love themselves, and this is a source of anxiety. Second, the HCP takes care of her patient: I will suggest that the HCP not only provides a treatment, but in addition helps the patient to put an end to this ambivalence. Indeed, the HCP, by expressing her concern of the patient's future, shows her the road to self-love. I will defend the quite provocative idea that the HCP does it if she loves the patient and her art, expressing a form of love compatible with the respect of patient's autonomy.

I will even go further. By accomplishing this most gratifying task, the HCP too arrives to self-love. According to Spinoza's Ethics, self-love, or being satisfied with ourselves, what we may today call self-esteem, "*is really the highest thing we can hope for*". This applies to patients and to HCPs as well.

Care is a difficult task, both for the patient and for the health care provider. Again, according to Spinoza's Ethics' last words, "*but all noble things are as difficult as they are rare*."

SWEET - SECURING APPROPRIATE SERVICES AND INFRASTRUCTURE FOR PAEDIATRIC AND ADOLESCENT DIABETES IN EUROPE

Prof Thomas Danne
Thomas Danne, Diabetes Centre for Children and Adolescents "AUF DER BULT", Hannover, Germany, danne@hka.de

In light of the technological advances in diabetes therapy becoming more widely available and with health care costs rising generally, economic data regarding health care are desperately needed to allocate resources appropriately. "SWEET" is an acronym derived from "Better control in Pediatric and Adolescent diabeteS : Working to CrEat CEnTers of Reference" and is based on a partnership of established national and European diabetes organizations (www.sweet-project.eu) led by the International Society for Pediatric and Adolescent Diabetes (ISPAD) with valaubele contributions of IDF Europe, FEND, and PCDE. Initial participating paediatric centres are from the Czech Republic, France, Germany, Greece, Hungary, Italy, Luxembourg, the Netherlands, Poland, Portugal, Romania, Sweden, and the UK. Co-funding for the initial project was granted by the European Public Health Executive Agency with additional funds from corporate partners and foundations. Recommendations for Diabetes Care and Treatment, as well as age-appropriate Education for children and adolescents with diabetes and Paediatric Training Programs for Health Care Professionals have been developed by SWEET. The proposed Criteria for an European Paediatric Diabetes Reference Centre ("COR") include a multidisciplinary approach, an ongoing electronic documentation of at least 150 paediatric diabetes patients < 18 years (i.e. at least age, diabetes duration, gender, HbA1c, type of diabetes), and the readiness to participate in external peer-reviewed auditing process and quality control circles. An initial 12 COR´s were approved jointly by the ISPAD Executive Committee and IDF Europe. The SWEET project hopes to extend from the initial group of centres within countries and throughout Europe and beyond.

OPTIMUM CARE PATHWAYS FOR END-STAGE KIDNEY DISEASE IN TYPE 1 & 2 DIABETES

Prof Liam Plant
Department of Renal Medicine, Cork University Hospital & University College Cork

Diabetic nephropathy in patients with Type 1 or Type 2 Diabetes leads to a substantial increase in morbidity and mortality. The majority will not progress/not survive to require renal replacement therapy (RRT) for End-Stage Kidney Disease (ESKD), but many will, and these form a substantial proportion of incident (15% in SW Ireland) and prevalent (14% in SW Ireland) ESKD patients treated by dialysis or renal/renal-pancreas transplantation.

The potential to progress/survive to ESKD differs considerably between Type 1 and Type 2 Diabetes. Furthermore, the timeline over which this occurs, the nature and extent of other co-morbidities, and the optimum timing and type of RRT differs.

This is reported in many studies, and is the ongoing experience of Renal Units around the world.

In South West Ireland over the last 10 years, prevalence of ESKD patients with diabetic nephropathy has trebled, from 33pmp to 110pmp. As a proportion of total ESKD patients there has been a doubling, from 7% to 14%. 15% of all incident patients had diabetic nephropathy (71% of these had Type 2 Diabetes).

Only 23% of transplants were performed in Type 2 patients. Incidence of ESKD due to Type 1 diabetes was fairly constant around 5pmp p.a. – 75% of these patients received a kidney/kidney-pancreas transplant.

This presentation will reflect on the experience of our centre and on reports from the world literature to advance suggestions as to how differential Care Pathways can be optimised.

REDESIGNING THE INTENSIVE CLINIC MODEL FOR TYPE 1 DIABETES

Prof Angus Forbes & Assoc Prof Seyda Ozcan
King's College Hospital, London & Florence Nightingale Nursing Faculty of Istanbul University, Turkey

In this presentation we will present an integrated analysis of patient expectations and clinical care needs in patients with Type 1 diabetes. The analysis was conducted to inform service development in a large diabetes treatment centre. The centre provides a wide range of services to support patients with Type 1 diabetes to help them manage their diabetes and in intensifying insulin therapy . The analysis applied the Chronic Care Model to conceptualise the current care system and identify areas for development. These areas included: enhanced systems for sharing clinical information; more flexible and easy to access sel-management resources; support with diabetes technology; psycohosocial support; and the need for greater integration and care continuity. In addition we will present clinical data defining the characteristics of the current patient population and their current self-manage practices. We have explored risk factors such as hypoglycaemia unawareness and level of glycaemic control. Finally, we provide data on patient general quality of life; depression and satisfaction with their current insulin treatment. The presentation concludes be identifying key areas in which patient care for people with Type 1 diabetes might be enhanced both in the studied centre and beyond.

We are very grateful to the Beta Cell Trust and FEND for supporting this project.

TYPE 2 DIABETES: TREATMENT WITH INCRETIN THERAPY

Prof Bo Ahrén
Lund University, Lund, Sweden

Glucose-lowering therapy in type 2 diabetes is important for reducing the risk for complications. The therapy aims at improve insulin resistance, impaired insulin secretion and augmented glucagon secretion in order to reduce hepatic glucose production and increase peripheral glucose uptake.

Medication is added if life style modifications are insufficient. The most widely used medication is metformin, which improves insulin sensitivity and reduces hepatic glucose production. It is weight-neutral with no increased risk for hypoglycemia. It may cause gastrointestinal side effects, and in rare cases, lactic acidosis.

When life style modifications plus metformin is insufficient, several options exist for additional drugs. During recent years, incretin therapy has been developed as a promising option. It is based on the effect of the gut hormone glucagon-like peptide-1 (GLP-1) to increase insulin secretion and inhibit glucagon secretion. Incretin therapy consists of injectable GLP-1 receptor agonists which activate the GLP-1 receptor, and oral dipeptidyl peptidase 4 (DPP-4) inhibitors, which prevent the inactivation of GLP-1 theraby increasing the endogenous GLP-1 concentration. Incretin therapy improve both fasting and

postprandial glycemia without increased risk for hypoglycemia. GLP-1 receptor agonists result also in weight loss, whereas DPP-4 inhibitors are weight neutral. Apart from nausea with GLP-1 receptor agonists, incretin therapy is rarely associated with any adverse events.

Incretin based therapy may be used as add-on to metformin and in combination with sulfonylureas, thiazolidinediones and insulin. DPP-4 inhibitors can also be used in monotherapy in patients for whom metformin in unsuitable.

EATING THROUGH THE MYTHS: FOOD, HEALTH AND HAPPINESS

Prof Roy Taylor
Newcastle University, UK

What kind of disease is type 2 diabetes? What really causes it? The best available information suggests that onset of type 2 diabetes is determined by relatively sudden failure of the beta cell to respond normally to a rise in blood glucose. Once established, the disease seems to behave as inevitably progressive with an irreversible beta cell defect. All the large studies of type 2 diabetes show a dismally progressive pattern such that around 50% of people require insulin therapy within 10 years. Various ideas on what is happening in the pancreatic islets have been proposed, including amyloid deposition, oxidative stress and cytokine action. Where does insulin resistance fit in? To date it has seemed to be rather complicated.

Several recent pieces of information appeared not to fit with this complex analysis. Also, when people lose weight due to any cause, blood glucose levels return towards normal even when insulin or oral agents are stopped. Could it be that type 2 diabetes is a simple direct consequence of too much fat in the pancreas? And that insulin resistance is simply a direct consequence of too much fat in the liver?

By developing new methodology to measure fat content in specific organs it has been possible to answer these questions, and to demonstrate the basic simplicity of type 2 diabetes. Complete normality of beta cell function can be restored by dietary means alone. The myths about type 2 diabetes can be discarded, and for many people reversal of type 2 diabetes can increase both health and happiness.

PRIMARY PREVENTION OF DIABETES - THE IMAGE EFFECT

Prof Peter E. H. Schwarz
Department for Prevention and Care of Diabetes, Medical Clinic III, University Clinic Carl Gustav Carus at the Technical University Dresden, Germany

Type 2 diabetes can be delayed or prevented among people who have IGT with lifestyle interventions or medication as shown by major clinical trials of diabetes prevention, but it is a completely different challenge to translate this message derived from the lifestyle trials to clinical practice. The European funded Project IMAGE have been addressing the implementation process to take a step ahead and to collate available information in a systematic manner and developed practical relevant standards for diabetes prevention. A group of about 100 European experts in this field has worked for 2.5 years, to prepare the main deliverables of the projects, which are the Evidence-based guideline on T2D prevention, a Toolkit for diabetes prevention and a guideline for evaluation and quality indicators and management in T2D prevention. Furthermore a European training curriculum for prevention managers to perform diabetes prevention intervention programmes was developed. The implementation of the IMAGE recommendations might facilitate the controlling of the T2D epidemic and eventually diminish the burden of diabetes. There will be a lot of work in implementing these recommendations in the future. Also, there is a need to continue systematic research into the aetiology, prevention and care management of T2D. In particular, translational research regarding the implementation of existing knowledge into public health and clinical practice must be carried out – the time to act is now.

THE POLICY PUZZLE - NEXT STEPS

Anne-Marie Felton
President FEND

This presentation will reflect on:

- the potential impact and opportunity arising from the European Parliament Resolution on Diabetes of March 2012
- the findings of the 3rd edition of the Policy Puzzle "Is Europe Making Progress?" Nov 2011.
- "The Diabetes Atlas of Variation Europe" (DAVE) – the next steps in the evolution of the survey.

FOCUSING ON PERSONAL UNDERSTANDINGS OF DIABETES IN GROUP SUPPORT

Dr Åsa Hörnsten
Senior lecturer at the Department of nursing, Umeå University, Sweden

In Sweden as well as other European countries, group support of people with type 2-diabetes mellitus (T2DM) is recommended. Group support facilitates for people to discuss disease management and more life oriented issues that may complicate coping with a chronic disease and may lead to integration of illness and effective self-management. Group support may also contribute to the ongoing paradigm shift towards person centred care where patients have a higher degree of power. Group support focusing on personal understandings (PUs) of illness highlights more than a need for new routines in daily life. Personal understandings of type 2 diabetes include a person's view of the nature, severity and burden of disease, which might differ from a biomedical view. PUs also include personal meanings of being diagnosed with a life-long illness. The successive integration of illness and its self-management in daily life as well as the responsibility and space for it is included in PUs of T2DM. Lastly, viewing the disease in a life perspective including thoughts about when and why it came and how it will influence the future is included in people's personal understandings of illness.

A five year follow-up of an intervention (Hörnsten et al., 2008) where people newly diagnosed with T2DM were randomized to either a 10 sessions group support based upon PUs and led by the first author, or traditional care delivered at local health care centres, revealed that group support was more effective. A difference in HbA1c of 1.37 percent units was demonstrated. An ongoing intervention study where people with T2DM are randomized to either a 6 session group support or individual support led by local diabetes specialist nurses or traditional care has not demonstrated effects at the same level. Reasons may relate to dose-response effects and that diabetes specialist nurses need to get acclimatised and also more training in person centred care. Concluded, group support and a focus on PUs seem to be more effective than traditional care but nurses need training to deliver it.

USE OF A WEB PORTAL TO SUPPORT YOUNG DIABETES PATIENTS AND FAMILIES

Dr Lena Hanberger
Childrens Hospital, UniversityHospital, Linköping, Sweden

Information technology is developing rapidly and the Internet has become increasingly popular. The use of Internet in health care is called eHealth. "Web 2.0" is a term for the second generation of the Internet, referring to improved communication and collaboration between people via social networking. The World Health Assembly emphasizes the importance of eHealth and asks member states to draw up strategic plans for the development and implementation of eHealth services in the health sector.

Internet interventions need further development. Patients have welcomed the potential of Internet interventions but have felt that many websites do not achieving their full potential.

Access to relevant information is the first step to patient empowerment, and it Health 2.0 / Medicine 2.0 will likely lead to empowerment of the patient as the Internet can deliver information in vast quantities.

Different cathegories of web sites for patients can be found: A) information about facts, B) other patients´ experiences and C) health care on the Internet. The number of Apps (application software) offered for smart phones has expanded exponentially.

An intervention with web portal, Diabit.se, with diabetes related information and the possibility to communicate with others with diabetes and health care professionals was performed. The study supports the fact that a Web 2.0 portal can be successfully used as a complement to traditional patient education and support. The implementation might be further enhanced by easy access, by highlighting new information, by promotion from active diabetes team members and through other reminders in the structure of care.

THE GENETICS OF TYPE 2 DIABETES: NATURE OR NURTURE?

Prof Graham Hitman
Professor of Molecular Medicine and Diabetes, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, UK

Type 2 Diabetes (T2D) is a multifactorial disease with significant genetic and environmental components. In recent years T2D has reached epidemic proportions. Fortunately, recent studies have shown that diabetes can be prevented by changing lifestyle and to a lesser extent with the use of some medications. In the last 5 years there has been an exponential increase in the number of genes associated with disease. Many of newly identified genes associated with diabetes are involved in pancreatic beta cell function underlying the importance of defects of insulin secretion as a prime cause of T2D.

Despite the rapid progress, the genes identified do not explain the majority of the genetic component of T2D indicating that there is likely to be another incremental step required to understand the genomics of diabetes. Amongst the many approaches being taken, we are studying how the triggering environment can directly affect gene regulation (so called epigenetics). For many years it has been realised that in utero nutritional factors can prime the foetus towards insulin resistance and diabetes. Genome-wide epigenetic reprogramming occurs during gametogenesis, implicating early foetal development as a period susceptible to environmental influence. There is also evidence of transgenerational effects of environmental factors associated with diabetes that can be reversed by correcting the nutritional deficiency. It is hoped that these advances will provide some of the missing clues in T2D, but more importantly lead to novel strategies to prevent and treat the disease.

GUIDELINES IN DIABETES MANAGEMENT - THE MISSING LINK OF PERSONALISED TARGETS AND CARE

Prof Stephen Colagiuri
Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders,
University of Sydney, Australia

Guidelines have become an essential component of clinical care and are designed to educate clinicians and improve patient care and outcomes. Guidelines have a number of limitations including the lengthy and costly preparation process and the frequent lack of solid evidence to address and make recommendations about difficult and controversial issues.

While much focus has been on guideline preparation methodology, the key issue with which we continue to struggle is guideline implementation. Key barriers include limited clinician knowledge and time, and health system deficiencies.

An emerging issue is how to adapt general guideline recommendations to make them relevant to an individual. For example a general glycaemic HbA1c target of 7.0% / 53 mmol/l is recommended in many guidelines, but clearly this target needs to be personalized to take into account individual circumstances. This target may be too high in a younger person with type 2 diabetes without co-morbidities and in the early stages of their diabetes, while it is likely to be too low in an older person with co-morbidities and limited life expectancy.

The attention of many guideline developers is now focused on methods for taking general guideline recommendations and providing guidance on how to personalized targets and treatments to make them more relevant and practical for an individual.

Prof Bo Ahrén

Bo Ahrén received his MD at Lund University. Since 1999 he holds the position of professor in Clinical Metabolic Research at Lund University and consultant at the Department of Endocrinology at Skane University Hospital. He was 2006-2011 the Dean of the Faculty of Medicine, Lund University..
Dr Ahrén has published several original articles and review articles within the area of islet function and the treatment of type 2 diabetes. He has combined basic science with clinically oriented research, and has during many years concentrated on developing the new incretin therapy.

Prof Stephen Colagiuri

Stephen Colagiuri is the Professor of Metabolic Health at the Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders at the University of Sydney.
His research interests focus on development and implementation of evidence-based guidelines, cardiometabolic risk assessment, diabetes screening and prevention, the glycemic index, and economic aspects of diabetes and obesity. Professor Colagiuri is Chair of the International Diabetes Federation (IDF) Clinical Guidelines Task Force, and an advisor on diabetes to the World Health Organization. He is the Editor-in-Chief of the journal Diabetes Research and Clinical Practice and a past President of the Australian Diabetes Society.

Prof Thomas Danne

Professor Thomas Danne is the Director of the Department of General Pediatrics and Endocrinology/Diabetology at the Kinderkrankenhaus "AUF DER BULT" in Hannover, and heading the largest pediatric diabetes center in Germany. He is Chair of the German IDF member organization Deutsche Diabetes-Hilfe (diabetesDE) and Past President of ISPAD and the German Diabetes Society (DDG). His research interests include multiple aspects of pediatric diabetology with special emphasis on novel insulins, insulin pump therapy, and, ultimately, closed-loop systems. He has been the Principal Investigator of several international multi-centric clinical trials and is the chairman of SWEET e.V.

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 and a Vice President of IDF.
In 1999 she was appointed as a Vice President of Diabetes UK and has been a member of the Diabetes UK Advisory Council since 2002. In addition, Anne-Marie is an Honorary consultant at Queen Mary's Hospital, Roehampton, London, UK, Vice President IDF and Chair of the IDF Global Advocacy Task Force, a member of the Alliance for European Diabetes Research (EURADIA), Executive committee member of PCDE and chair of European Coalition for Diabetes 2012 (ECD). Anne-Marie has been appointed Chair of the Organising Committee for IDF Congress 2013 Melbourne

Prof Angus Forbes

Professor Forbes holds the FEND Chair of Diabetes Nursing. He is based at King's college London and has held an honorary post as a specialist diabetes nurse at King's College Hospital since 2003. Prof Forbes is an active researcher in diabetes, recent studies include: a national scoping project on diabetes care and organisation; an assessment of the nursing contribution to chronic disease management (diabetes); the relationship between cognitive impairment and diabetic retinopathy; supporting patients in insulin intensification; evaluating a telecare intervention to support weight loss in type 2 diabetes; and diabetes prevention in women with GDM. Angus also runs a wide range of different courses for health pro-

fessionals in diabetes, including the FEND ENDCUP programme. He has an interest in E-health and psychological interventions in diabetes. 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.

Dr Lena Hanberger

Lena Hanberger is a Diabetes Nurse at the Childrens Hospital, UniversityHospital, Linköping, Sweden and PhD at Linköping University. The research focus is on quality of care from the patients´ perspective as well as the health care professionals´perspective, and also patients use of Internet in pediatric diabetes care

Prof Graham Hitman

Graham Hitman is Professor of Molecular Medicine and Diabetes at Barts and The London School of Medicine and Dentistry and Consultant Diabetologist at Barts Health NHS Trust. He is Editor-in-Chief of Diabetic Medicine.
His main research interests are the genomics of type 2 diabetes and prevention strategies, especially in people from South Asia. He is also one of the principal investigators of the CARDS (Collaborative Atorvastatin Diabetes Study) trial that has influenced the development of current lipid lowering guidelines in diabetes. He has over 240 peer reviewed publications.

Dr Åsa Hörnsten

Postgraduate educations: Anesthesia and intensive care nursing 1988, District / Primary health care nursing 1991, Diabetes specialist nursing 2000, Master (one year) exam 2000, PhD exam 2004, Associate professor 2012.
I have worked full or part time at in-patient clinics until 1990, at out-patient clinics until 2011. Currently Senior lecturer at the Department of nursing, Umeå University.
Research interests are patients' perspectives on illness; Self-management support; Patient education; Type 2-diabetes

Dr Seyda Ozcan

Dr Ozcan has intense experience in academical/clinical area and international / national settings of diabetes nursing over twenty years. Seyda worked as a registered nurse, then as a research assistant and now as an associate professor at the Florence Nightingale School of Nursing in Istanbul University. She has been teaching in undergraduate, graduate and postgraduate programmes.
Dr.Ozcan was an Executive Committee Member of FEND(2001-2007), now a member of its Advisory Board. She has been a member of Diabetes Education Consultative Section of International Diabetes Federation since 2008; executive committee member of Turkish Diabetes Nursing Association since 1998; and member of Turkish Diabetes Foundation.
Dr.Ozcan has scientific awards, some research fundings, published articles, books and chapters in books. Seyda was a visiting professor/ research scholar at the New York University (Nov 2004-Dec 2005); guest researcher in Uppsala University/Sweden (Oct 2006); FEND Clinical Research Fellow funded by Beta Cell Trust in King's College London&Hospital (Feb 2011-2012) to conduct a service development project in intensive insulin clinic.

Prof Liam Plant

Graduate of University College Cork, Ireland. Trained in Renal Medicine in Ireland and Scotland.
Previously Consultant Renal Physician, Royal Infirmary of Edinburgh & Senior Lecturer in Medicine, Edinburgh University. Currently Consultant Renal Physician, Cork University Hospital & Clinical Senior Lecturer in Nephrology, University College Cork.
National Clinical Director, HSE National Renal Office, Ireland.

Prof Gerard Reach

Professor Gérard Reach is a diabetologist and head of the Endocrine, Diabetes, and Metabolic Diseases Department of Hospital Avicenne in Bobigny, France. He is Professor of Endocrinology and Metabolic Diseases at University Paris 13. He published two books on patients' adherence to long term therapies (one of them is being translated into English), and a book, to be published in September, 2012 (in French) by Springer on doctors' clinical inertia.

Elisabeth Schnellbächer

Finished training as a nurse in 1975, absolved university in 1980 as a teacher, achieved title as Diabetes Nurse in 2000.
Since 2008 Member of the Executive Committee of the VDBD. In this period I was the initiator for our campaign on the occasion of the World Diabetes Day. It was about creating motivation for a healthy diet and exercise in children. Following the principle: Healthy is tasty and exercise is fun! The movement was supported by several secretaries of education of the various states. During the first year ca. 10.000 children have been reached. Due to the great success, the campaign was repeated the following year in a modified form. The following evaluation showed a learning success and changes in behavior.
Since 2011 Chairwoman of the VDBD (Verband der Diabetesberatungs und –schulungsberufe, German Association of Diabetes Nurses)

Prof Peter Schwarz

Prof. Schwarz was born 1971 in Eisenberg, Germany. He studied medicine at "Medizinische Fakultät Carl Gustav Carus" in Dresden and completed his dissertation in 2001. From 1999 - 2000 he worked as postdoc at University of Chicago in a Howard Hughes Institute. 2000 - 2007 he worked as resident for the Department of Endocrinology and Metabolic diseases at "Technische Universität". In 2007 he obtained his qualification as a specialist for Internal Medicine. Since 2008, Prof. Schwarz is head of the Division of Prevention and Care of Diabetes at "Universitätsklinikum Carl Gustav Carus" in Dresden. In 2008 he obtained his postdoctoral lecture qualification and was appointed as Professor of Prevention and Care of Diabetes. The aims of his work are the development and monitoring of the implementation of methods for primary prevention of type 2 diabetes and its implementation in in-patient and out-patient care. Prof. Schwarz is coordinating the German work group called Diabetes Prevention and is a member of the scientific advisory board of the "Diabetes-Präventions-Forum (DPF)" of the International Diabetes Association in the European Union (IDF-EUROPE). He has published a large number of national and international publications.

Prof Roy Taylor

Roy Taylor qualified in medicine at the University of Edinburgh, and is now Professor of Medicine and Metabolism at Newcastle University and Newcastle Hospitals NHS Trust. He has been conducting research on type 2 diabetes since 1981, and has used a wide range of methods to understand the condition. Most importantly, Prof. Taylor founded the Newcastle Magnetic Resonance Centre in 2006. This new facility furthers medical and scientific knowledge by direct study of how the body works, bringing together cutting edge physics and physiology. This has led to an understanding of how food is handled by the body in health and disease.
He also directs the Newcastle diabetes eye screening programme which has abolished blindness due to diabetes in young people in Newcastle. This work led to the establishment of the current English National Screening Programme for Diabetic Retinopathy.
Prof. Taylor has authored over 200 scientific papers and has given over 70 invited lectures internationally including a lecture to FEND in 2009. He has delivered several named lectures including the 2012 Banting Memorial Lecture of Diabetes UK.

1

PSYCHOSOCIAL ASPECTS OF FEAR OF HYPOGLYCEMIA

Anderbro T. lic psychologist, PhD student[1,2], Bolinder J. MD prof[3], Lins P-E. MD prof[1], Wredling R. prof[1], Moberg E. MD assoc prof[3], Lisspers J. lic psychologist prof[4], Johansson U-B. assoc prof[1,2]

[1] Karolinska Institutet, Department of Clinical Sciences, Danderyd Hospital, Division of Medicine, Stockholm, Sweden
[2] Sophiahemmet University College, Stockholm, Sweden
[3] Karolinska Institutet, Department of Medicine, Karolinska University Hospital, Huddinge, Sweden
[4] Department of Social Sciences, Mid Sweden University Campus Östersund, Sweden

Background

Fear of hypoglycaemia (FH) is common among patients with type 1 diabetes and it is well known that it has a negative effect on quality of life as well as on self-management and health outcomes. So far a strong association has been found between previous episodes of severe hypoglycaemia and FH but there is a lack of knowledge about the role of psychosocial factors in the development and maintenance of this fear.

Aim

The aim of this study was to investigate FH in adults with type 1 diabetes and its association with psychological, demographic and disease specific factors with the aim of identifying targets for intervention. Furthermore this study aimed at investigating possible differences regarding these factors in sub-groups of patients with high or low FH with or without experience of severe episode(s) of hypoglycaemia in the past year or with poor or satisfactory HbA1c.

Method

Questionnaires were sent by mail to 764 patients with type 1 diabetes. FH was measured using the Hypoglycemia Fear Survey (HFS). Psychological measures included Perceived Stress Scale, Hospital Anxiety and Depression Scale, Anxiety Sensitivity Index, Social Phobia Scale and Fear of Complications Scale, Alcohol habits and Exercise habits. Univariate analysis, multiple stepwise linear regression analysis, chi-square test, unpaired t-test and ANOVA were used in the statistical analysis.

Results

A total of 469 (61%) patients responded. The HFS was significantly associated with The Anxiety Sensitivity Index, the Anxiety subscale of Hospital Anxiety and Depression Scale and Social Phobia Scale. Together with the disease-specific factors the regression model explained 39% of the variance.

Conclusion

This study showed that HFS is positively associated with the psychological factors anxiety, anxiety symptoms and social phobia. The study confirms previously found gender differences. It also showed differences in factors associated with FH between the different subgroups that may have implications in developing interventions.

2

LOWER FEAR OF HYPOGLYCAEMIA IN PATIENTS WITH TYPE 1 DIABETES OF SHORT DURATION

Ernersson Å. PhD[1,2], Berggren B. MD[1], Hollman-Frisman G. PhD[2], Lindström T. MD PhD[1,3]

[1] Department of Endocrinology, University Hospital, County Council of Östergötland, SE 58185 Linköping Sweden,
[2] Division of Nursing Sciences, Department of Medicine and Health Sciences, Faculty of Health Sciences, Linköping University, SE 58185 Linköping Sweden,
[3] Division of Cardiovascular Medicine, Department of Medicine and Health Sciences, Faculty of Health Sciences, Linköping University, SE 58185 Linköping Sweden.

Background: Fear of hypoglycaemia is common in patients with type 1 diabetes and many patients deliberately aim at higher blood glucose than recommended to avoid hypoglycaemia. Patient empowerment is a process whereby patients have the skills, attitudes, and self-awareness necessary to influence the quality of their lives. An empowered patient has sufficient knowledge to take relevant decisions about their illness, medical treatment and their own health.

Aim: The aim was to study empowerment, fear of hypoglycaemia and problem areas among patients with type1 diabetes.

Method: Four hundred fifty-seven patients, mean age 48.5 (±15.4) years, completed an questionnaire including questions on the duration of diabetes, episodes of severe hypoglycaemias and metabolic control, the Swedish Diabetes Empowerment Scale – 23 (SWE-DES-23), Fear of Hypoglycaemia Survey (HFS) and the Problem Areas in Diabetes scale (SWE-PAID-20) .

Results: The level of HbA1c was not associated with fear of hypoglycaemia while patients with newly diagnosed (0-5 years) diabetes had significantly lower ($p=0.001$) fear of hypoglycaemia than those with longer duration. Episodes of severe hypoglycaemia during the last year also influenced the rating on HFS. HFS was 24.7(11.6) in those with no episodes, 30.5(13.9) 1 episode, 33.0(15.4) 2-4 episodes (all $p<0.01$). Patients with HbA1c ≥8.0 % rated lower empowerment (SWE-DES-23) compared to those who had an HbA1c between 6.1-7.9% ($p=0.02$) and compared to those with HbA1c lower or equal to 6.0 % ($p<0.001$).

On the SWE-PAID-20 patients with HbA1c ≥8 % scored in average 32.2(20.5) while those with HbA1c ≤6.0% scored 20.0(17.6) ($p<0.001$) (higher value indicates more emotional distress related to diabetes).

Conclusion: Patients with poor metabolic control, HbA1c ≥8 % are less empowered and also experiences more emotional distress related to their diabetes. Fear of hypoglycaemia was lowest in patient with up to 5 years duration of type 1 diabetes. HbA1c was not associated with fear of hypoglycaemia while repeated episodes of severe hypoglycaemia during the last year increased this fear.

3
FEAR OF HYPOGLYCEMIA IN TYPE 2 PATIENTS ON INSULIN THERAPY

Jonke T. RN, Mlakar M. RN, Kolarić V. RN, Ajduković D. MA
Vuk Vrhovac University Clinic, Zagreb, Croatia

Background
Patients perceive hypoglycaemia to be one of the most unpleasant acute complications. Fear of hypoglycaemia entails both behavioural and emotional responses directed toward avoiding hypoglycaemia, some of which can be non-adaptive and worsen medical outcomes.

Aim
The aim of this paper was to examine the sources of worry and the strategies that patients use to avoid hypoglycaemia in order to assess the hypoglycaemia-related educational and emotional needs of the patients.

Method
Type 2 diabetes patients on insulin therapy (N=69) filled out the Fear of hypoglycaemia scale (Irvine et al., 1994) during their annual diabetologist check-up. Mean subscale (behaviour and worry) scores were compared to T2DM norms using t-tests. Subscale items were grouped based on content, and frequencies of responses were calculated.

Results
The mean subscale scores were lower than norms (behaviour: M=16.8, worry: M=14.5, p's<.0001). The most frequent behavioural responses to risk of hypoglycaemia were aimed at increasing BG levels (eating something: 72%, having food on hand: 71%), but about one-third usually kept their BG high "just to be safe" (35%) and before going to sleep (34%). Less than one-half of patients adjusted their insulin dose (47%) and avoided exercise (42%) when their blood sugars were too low. A significant proportion (40%) avoid being alone when their blood sugar may be low.

The most common sources of worry were not being able to recognize hypoglycaemia in time and not having won't have food at hand (23% and 30%, respectively). About one-fifth (19%) reported fear of being alone when hypoglycaemic. About 16% reported fears concerning endangering self or others, with one-fifth worrying about hypoglycaemia when driving. Fear of public embarrassment affected a minority of patients (9%).

Conclusion
Fear of hypoglycaemia is low in the studied sample. Hypoglycaemia avoidance strategies are largely based on additional food intake, rather than insulin dose adjustment. A significant proportion of patients keep their BG high and avoid being alone out of fear of hypoglycaemia. Diabetes education should focus on improving patients' self-efficacy in managing hypoglycaemias by more adaptive strategies.

4
PROMOTION OF HEALTHY FOOD CHOICES FOR CHILDREN IN FIRST GRADE

Nascimento do Ó D. RN MPH MSN, Varandas L. RN PhD*, Serrabulho L. RN MED, Raposo J. MD PhD
APDP – Diabetes Portugal, Lisbon, Portugal
* Lisbon Nurse School, Lisbon, Portugal

Background: The increasing prevalence and incidence of overweight and obesity in childhood is a serious public health problem. Thus health nutrition habits and physical activities are fundamental to deal with this trend.

Aim: Development of a communitarian intervention project in a first-grade school to promote healthy eating habits and physical activity in 1st grade children.

Method: This project was based in Betty Neuman's Systems Model and in health planning methodology. 46 third-grade-students filled in a nutrition and physical activity questionnaire for the assessment and diagnosis of the situation. The results showed a high consumption of non-healthy food, especially in the snacks and moderate physical activity for most children. Subsequently, semi-structured interviews were made to experts, who validated the results obtained in the questionnaires. The experts considered important an intervention on healthy eating, with priority incidence on the snacks. The promotion of physical activity was not considered a priority area for community intervention. Then, we defined priorities, objectives and intervention strategies. The interventions involved teachers, students and parents. We developed activities with interactive group methodologies, using facilitating, empathetic and positive reinforcement attitudes. Considering the relationship between the students and parents/legal guardians, during the implementation of the several interventions, there were proposed some activities to be jointly developed.

Result: The intervention results were analyzed according to indicators such as productivity, adherence, quality, direct effect and efficiency. This analysis showed that the initial objectives were achieved. The participation of parents was higher in activities to be undertaken with students at home.

After 8 weeks of intervention, the students' nutrition choices during the snacks improved – there was a decrease of sugar intake (48,5% to 16,7%) and an increase of fruit intake (3,2% to 19,1%), cereals and vegetables (21,2% to 28,2%) and milk products (20,4% to 30,2%).

Conclusion: The results are according with the consulted bibliography, underlining the importance of intervention in schools for the promotion of healthy food choices, with the parents' involvement, using flexible educational tools enabling the participation in students' homes.

5
INSULIN RESISTANCE AND IMPAIRED FASTING GLUCOSE DURING PUBERTY

Jeffery AN, PhD, RGN, Wilkin TJ, MD, Professor of Medicine,
Peninsula Medical School, Plymouth, UK

Background
Childhood and adolescent prevalence of both types of diabetes is increasing. Type 2 is characterised by insulin resistance (IR). Impaired fasting glucose (IFG) is a recognised risk factor for diabetes, but prevalence among 'healthy' children is unclear.

Aim
To use annual measures taken over a 10-year period in healthy children to characterise those who develop high IR or IFG during puberty.

Methods
EarlyBird: a longitudinal study of 300 healthy children recruited from randomly selected schools at 5y and followed to 15y. Birth-weight (sds) was available from the Child Health Register.

Annual measures: Body mass index (BMI;sds), sum of 5 skinfolds (SSF), waist circumference (WC), total physical activity (TPA, accelerometer), fasting glucose, insulin, insulin resistance (HOMA-IR), beta-cell function (HOMA-%B). Puberty was adjusted for by age at peak height velocity (APHV).

High IR was identified by HOMA-IR ≥90th centile (gender specific) at the pubertal peak, IFG by ADA criteria of fasting glucose ≥5.6 mmol/l.

Results
34 children had high IR (12 boys), 55 had IFG (39 boys), 6 had both (1 boy).

High-IR group: IR was significantly higher from 9y (0.81 v 0.59 units, p=0.003). The high-IR children were fatter from 5y (BMI 0.86 v 0.29sd, SSF 5.01 v 3.89cm, WC 53.26 v 50.8cm; all p<0.01), and continued to be fatter during puberty (all p<0.001). In longitudinal analyses adjusting for BMI and APHV, the IR group had lower TPA (4.51 v 4.78 E-6), lower birth-weight (-0.10 v 0.20 sd, p<0.001) and greater weight gain 0-5y (0.51 v 0.25sd; all p<0.01).

IFG group: Glucose was higher throughout in those who developed IFG (p< 0.001). There were no differences in adiposity between those who showed IFG and those who did not (p≥0.35), and no difference in IR (p≥0.12), but HOMA-%B, was lower from the 5y in IFG children (p=0.005).

Conclusions
Two groups of at risk children were identifiable from early childhood. Action to moderate early weight gain and increase activity may reduce high IR during puberty. IFG is common in contemporary children, and lower beta-cell function was identifiable in these individuals from 5y.

6
ADHERENCE TO SELF-CARE ONE YEAR AFTER ONSET OF TYPE 1 DIABETES. ITS IMPACT ON METABOLIC AND QUALITY OF LIFE OUTCOMES

Jansà M., Vidal M., De Hollanda A. MD, Conget I. PhD, Giménez M. MD, Ara P., Yago G., Roca D., Llorens E., Esmatjes E. PhD.
Diabetes Unit. Endocrinology and Nutrition Department. IDIBAPS (Institut d'Investigacions Biomèdiques August Pi i Sunyer). ICMDM, Hospital Clínic Universitari. Barcelona, Spain.

Background
Metabolic control from the onset of Type 1 Diabetes (T1D) is an essential factor for the future outcomes of the disease. Patient self-management is a relevant part of this process.

Aim
We investigated the impact of adherence to self-care in metabolic control and quality of life after the first year of T1D onset.

Patients and Methods
We performed a longitudinal, prospective, unicentre study including all patients with newly diagnosed T1D during the period 2009-2011. All patients followed the specific and structured Therapeutic Education Programme mixing individual and group interventions (survival, basic and advanced level) and were treated with multiple doses of insulin analogues. We evaluated socio-demographic characteristics, metabolic control (A1c and frequency of hypoglycaemia), awareness of hypoglycaemia (Clarke test), knowledge of diabetes (DKQ2 test), quality of life (DQoL test), and adherence to self-care (SCI-R test).

Results
One year after T1D onset (age 27.3±7.4 years, 41 males, A1c at onset 11.9+3.0%) we evaluated 54 patients with the following results: A1c 6.8+1.1%, p< 0.001 hypoglycaemia unawareness in 4 patients (Clarke test score > 4), 2 severe hypoglycaemia events in 2 different patients, score of DKQ2 knowledge test 28/35, score of the 4 scales of Diabetes Quality of life Perception (The lower score the better perception) : Satisfaction (29.8±9.8); Impact (30.8±7.9); Social Worry (12.6 ± 6.9); and Diabetes Worry (8.8 ± 3.1); The percentage of the self-care SCI-R test was: 72.3%+13.7 % . Adherence to self-care correlated negatively with A1c (r = -0.421*) and 3 scales of DQoL: Impact (r = -0.371*), Social Worry (r = -0.362*) and Diabetes Worry (r = -0.379*).p< 0.05*

Conclusions
High adherence rates to self-care one year after T1D diagnosis has a positive impact on not only metabolic control but also quality of life. The long-term effect on the prognosis of the disease remains to be elucidated.

7
THE NUMBER OF PREGNANT WOMEN WITH GESTATIONAL DIABETES SIGNIFICANTLY INCREASES USING NEW IADPSG CRITERIA

Freund S., Kolarić V., Prašek M. MD, Vučić Lovrenčić M. PhD Biochemistry
Merkur University Hospital, Vuk Vrhovac University Clinic, Zagreb, Croatia

Background
The diagnosis of gestational diabetes (GDM) adversely affects pregnancy, foetus and the mother's and child's future. Many studies have demonstrated the association of diabetes onset with preterm birth of infants with macrosomia, and with stillbirth and neonatal death. The diagnosis is made by oral glucose tolerance (OGT) test. World Health Organisation (WHO) diagnostic criteria have been used in Croatia since 2006, but new International Association of the Diabetes and Pregnancy Study Group (IADPSG) criteria have been proposed to improve care of pregnant women.

Aim
Compare WHO and IADPSG criteria in determining the prevalence of GDM.

Method
A three-month period (Oct.-Dec.2011) during which 468 healthy pregnant women visited the Vuk Vrhovac Clinic was investigated. A 75-g OGTT was performed and the results compared according to the WHO and IADPSG criteria.

Results
Clinical characteristics of the studied 468 women were: mean age 30(16-42) yrs., 29th(26-33) week of gestation, BMI at the beginning of pregnancy 22.8(20.7 – 25.7) kg/m^2, and mean HBA1c 5.2%(5.1-5.4).

Using WHO diagnostic criteria, 17.9%(N=84) of the pregnant women were diagnosed with GDM, whereas 82.1% (N=384) had a normal finding. Applying IADPSG criteria, 47.6%(N=223) of the women had GDM, and in 52.4%(N=245) of them the finding was normal.

Conclusion
The results indicate that a significantly higher percentage of gestational diabetes can be expected with the use of IADPSG criteria. Although this points to a greater need for investment in the prevention and early detection of GDM, it significantly reduces the risk of pregnancy and labour complications.

GDM therapy includes a 1800Kcal-2000Kcal daily diet, a 12kg-recommended increase in body weight from the 12th gestational week, moderate physical activity (unless there is a danger from spontaneous abortion), introduction of insulin therapy if fasting glycaemia rises to > 6.0 mmol/l and postprandial to > 8.0 mmol/l , regular control of glycaemic profiles (fasting, 2 hours after breakfast, lunch and dinner). Control OGTT should be carried out 3-6 months after childbirth. Such a therapy is much less expensive than the pathological outcome of pregnancy. .

8
PSYCHOMETRIC EVALUATION OF THE "FEAR OF COMPLICATIONS QUESTIONNAIRE"

Olsen M, PhD student[1], Anderbro T, lic. psychologist, PhD student[2,3], Amsberg S, PhD[2,3], Leksell J, PhD[1,4], Moberg E, MD, Assoc professor[5], Lisspers J, lic. psychologist, professor[5], Gudbjörnsdottir S[7], MD, Assoc professor, Johansson U-B, Assoc professor[2,3]
[1] School of Health and Social Sciences, Högskolan Dalarna, Falun,
[2] Sophiahemmet University College, Stockholm
[3] Karolinska Institutet, Department of Clinical Sciences, Danderyd Hospital, Stockholm,
[4] Uppsala University, Uppsala
[5] Karolinska Institutet, Department of Medicine, Huddinge
[6] Department of Social Sciences, Mid Sweden University Campus Östersund
[7] Gothenburg University, Gothenburg, Sweden.

Background
It is important to identify and evaluate patients' perceptions of medical as well as psychological problems. Previous studies have shown that symptoms of anxiety and depression are common in people with diabetes. The Fear of complications questionnaire (FCQ), captures items regarding fear of complications in people with diabetes. The questionnaire needs further scientific evaluation and cultural adaptation.

Aim
The aim of this study was to evaluate the psychometric properties of the Swedish version of the FCQ.

Method
The FAQ was translated using the forward-backward translation method and was thereafter answered by 467 patients with type 1 diabetes from two university hospitals in Stockholm, Sweden, age ≥ 18 years and duration of diabetes ≥ 1 year.

Descriptive statistics were performed for demographic and clinical characteristics, factor analysis and Cronbach's alpha. The Swedish Hypoglycemia Fear Survey (Swe-HFS) and Hospital Anxiety and Depression Scale (HADS) were used to test convergent validity.

Result
A total of 467 patients (235 women and 232 men) with a mean age of 47 years (SD=14), a mean duration of diabetes of 31.0 years (SD=14.2) and a mean HbA1c of 6.9% (SD=1.0) (reference value < 5.0%) responded to the questionnaires. Cronbach's alpha was satisfactory 0.96 for the total FCQ. The FCQ correlated significantly positively with HADS and Swe-HFS, p-value < 0.0001.

Conclusion
The results of the present study suggest that FAQ as a one factor scale seems to be a reliable and valid measure for identifying fear of complications in patients with type 1 diabetes, although further testing of the FAQ with different populations is needed.

9
LIFE SATISFACTION AND TYPE 2 DIABETES

F. Bakomitrou[1], S. Bousmpoulas[2], F. Spyropoulou[3], E. Karadimas[4], A. Kalantzi-Azizi[5], P. Vergidou, A. Grozou[6], V. Spinaris[7], S. Pappas[8].
[1] Clinical psychology-psychotherapist (MSc., PhDc.), Diabetes Centre Manager, General Hospital Nice, Athens, Greece · University of Athens, Athens, Greece.
[2] Pathologist - Diabetologist, Associate Director, C. Department of Internal Medicine, Diabetes Centre Manager, General Hospital Nice, Athens.
[3] Psychology, University of Athens, Athens, Greece.
[4] Associated Professor of Health Clinical Psychology, University of Crete, Crete, Greece.[5] Professor of Clinical Psychology, University of Athens, Athens, Greece.
[6] Health visitor, General Hospital Nice, Athens. [7] Psychiatry, Director, C. Department of Internal Medicine, General Hospital Nice, Athens. [8] Pathologist - Diabetologist, Director, C. Department of Internal Medicine, Diabetes Centre Manager, General Hospital Nice, Athens.

Background: According to recent epidemiological data there is a rapid increase in diabetes mellitus incidence, with the number of patients launched globally in 366 million, while in Greece it is estimated that there are now more than 10%. Under the general concern for the aforementioned increase, and given the importance of health in a person's quality of life as well as the satisfaction deriving from the latter, it has been considered appropriate to conduct this study in order to estimate some related data concerning the Greek population.

Aim: This research, refers to Diabetes and Life satisfaction. In particular, it is a descriptive study of differences in levels of life satisfaction in Greek outpatient incidents with Type 2 Diabetes Mellitus.

Method: The survey involved 120 patients, women and men in random ratio, aged between 30 to 80 years old who visited the Diabetes Clinic of the General State Hospital of Nikaia- Piraeus. The systematic sampling method was used in order to collect the sample. A tripartite questionnaire was granted which included a demographic data questionnaire, the Diabetes Attitude Scale – 3- DAS and the Life Satisfaction Index –LSI. The statistical methods T-Test Groups and one factor analysis of variance (One-Way ANOVA) with Bonferroni correction were also used.

Result: According to the findings emerging from the data analysis, it appears that despite the daily sugar measurement, only 40% of the patients can keep their blood sugar levels low. Regarding the occurrence of problems due to diabetes, a considerable percentage presented ophthalmological disorders while 30% had high blood pressure, decreased stamina and heart problems. However, unlike other studies, the majority of patients showed no complications from diabetes and had no problems other than diabetes.

Conclusion: Finally, major findings are that life satisfaction is particularly affected by the unemployment and the frequency of visits to the doctor and that the attitude of patients to the psychosocial impact of diabetes is significantly influenced by the presence of complications in their health such as hypoglycemic shock or neural dysfunction and by the maintenance of their blood sugar lower than 200mg/dL.

10
EVALUATION OF THE AUTONOMY OF CHILDREN WITH DIABETES ATTENDING THE 2011 RABAC SUMMER CAMP

Iris Britvar, Snježana Gaćina
Merkur University Hospital, Vuk Vrhovac University Clinic for Diabetes, Endocrinology and Metabolic Diseases, Dugi dol, 4a Zagreb, Croatia

Background
The study was carried out at the Rabac Summer Camp for Children with Diabetes in 2011. Data were collected from children and their parents using a 12-item questionnaire designed for this research asking about the children's autonomy.

Aim
Describe the sample using descriptive statistics, assess the frequency of identical answers given by children and parents, and establish whether HbA1c levels and diabetes (DM) duration depend on correspondence between children's and parents' answers about the children's autonomy.

Method
T-test was used for the hypothesis for corresponding expecations of A1c and DM duration. F-test was employed to confirm the homogeneity of variance. Result: A total of 21 pairs of children and parents were investigated. Mean child age was 13.05 ± 1.43 yrs., DM duration 3.65±2.27 yrs., and mean A1c value was 8.21±2.3 %. There were 62% of boys and 38% of girls. With respect to the type of therapy, 24% of children were on two insulin doses, 62% on intensified therapy and 14% were on insulin pump.

Result
Parents and children agreed most (86%) on the question "Do you differentiate between the categories of foodstuff?", and the least (24%) on "How would you assess your readiness to gain new knowledge?". Children whose answer to the question about autonomy in blood glucose self-control differed from that of their parents had longer DM duration on average (assumption on homogeneity of variance was satisfied p=0.128). Children who responded differently from their parents had mean diabetes duration of 4.89± 2.56 yrs., whereas those whose answers were equal had diabetes for a mean of 2.72 ± 1.55 yrs. The hypothesis that children from both parent-children pairs who gave identical answers or those who answered differently have equal mean A1c cannot be rejected (assumption on homogeneity of variance was satisfied p=0.439).

Conclusion
Average correspondence between parents' and children's answers was 44%, indicating good concordance in the assessment of autonomy. DM duration and A1c levels did not affect agreement on autonomy evaluation. Parents should be encouraged to accept autonomy of their children, as they are ready for a greater independence than assessed by their parents.

11

(withdrawn)

12

WHEN, WHY AND HOW: A MULTIDISCIPLINARY GUIDELINE ABOUT THE SELF MONITORING OF BLOOD GLUCOSES BY PEOPLE WITH DIABETES.

Hensbergen J.F.[1], Beer H. de[2], Campmans M.[3], Hoogma R.[4], Jansen R.[5], Koppert H.[6], Meima F.[7], Vos C.[8],

[1] Diabetes Nurse Specialist EADV VUmc Amsterdam, [2] Senior Investigator TNO Utrecht, [3] Dietician DNO, Clinical Epidemiologist UMC Utrecht, [4] Endocrinologist NIV Groene Hart ziekenhuis Gouda, [5] Clinical chemist NVKCInstitute of Quality Control Medical laboratorium diagnostics Nijmegen, [6] diabetespatient DVN Nieuwegein, [7] General Practitioner Diabetes DiHAG, Bathmen, [8] Diabetes Nurse Specialist EADV Evean Zorg Zaanstreek Waterland, Netherlands

Background

Although almost all of our patients with insulin therapy and some of them with only oral medication perform self monitoring of blood glucoses (smbg), there is hardly any evidence for the benefit of it. That's why we developed an evidence based, multidisciplinary guideline about this subject. Our main questions were: is it useful and if yes, how often, which times of the day? What education is necessary and how should we teach our patients to perform smbg?

Aim

To provide diabetes health care professionals (HCP's) with recommendations in their daily practice with smbg so that they can give advice about indication, frequency, moments of the day, education & instruction about smbg to their patients. Further aims are to avoid useless smbg and to stimulate patients smbg-goal setting, including time paths and evaluations.

Methods

We asked a variety of diabetes HCP's to participate in the guideline development team. Than we explored 'the field' about their thoughts and believes concerning smbg. After collecting all the reactions, we distracted 5 main problems and started a literature search. The conclusions of the literature were discussed in the multidisciplinary team. We tried to translate the findings to the Dutch situation, to find out what were the consequences for patients, HCP's and the financial consequences. Finally, we put all the comments together and formulated our recommendations.

Result

We developed an evidence based, multidisciplinary guideline for diabetes HCP's about smbg for people with diabetes. Besides, we developed some extra documents to make it easier for HCP's to use the guidelines in daily practice.

Conclusions

Smbg is useful but in certain circumstances. Diabetes patients, together with their HCP's, should set goals and evaluate smbg. Without structured education, smbg should not be advised. We must instruct our patients to wash and dry their hands before performing smbg and use the first drop of blood.

13
SYMPTOMS AND PRE-HOSPITAL DELAY IN MYOCARDIAL INFARCTION. SIMILARITIES AND DIFFERENCES BETWEEN PATIENTS WITH AND WITHOUT DIABETES

Hellström Ängerud K.[1,2], Brulin C.[1] Professor, Näslund U.[2,3], MD Professor, Eliasson M.[3,4], MD Professor
[1] Department of Nursing, Umeå University, Umeå, Sweden
[2] Department of Cardiology, Heart Centre, University Hospital, Umeå, Sweden,
[3] Department of Public Health and Clinical Medicine, Umeå University, Umeå, Sweden.
[4] Department of Medicine, Sunderby Hospital, Luleå, Sweden

Background
Mortality from myocardial infarction (MI) is elevated in patients with diabetes compared with patients without diabetes. Reperfusion therapy in MI reduces both morbidity and mortality and greatest benefits have patients with short time to received treatment. Despite the time-dependent effectiveness of reperfusion therapy, more than half of the patients with MI delay in seeking medical care by more than 2 hours from symptom onset. Analysis of patterns in symptoms and pre-hospital delay in men and women with and without diabetes are important and may improve patient education aiming to reduce delay times in MI.

Aims
To describe symptoms and pre-hospital delay in a first myocardial infarction among men and women with and without diabetes.
These population based studies consisted of 4028 and 4266 people aged 25–74 years with MI, registered in the Northern Sweden MONICA myocardial infarction registry between 2000 and 2008.

Results
Patients with diabetes had longer pre-hospital delay in MI compared to patients without diabetes. For patients with diabetes, a higher proportion had delay times ≥ 2 h compared to patients without diabetes. Typical MI symptoms were common and there were no major differences in symptoms of MI between patients with and without diabetes. There were no significant differences in symptoms and delay times ≥ 2 h between men and women with diabetes.

Conclusion
Patients with diabetes had longer pre-hospital delay times in MI compared to patients without diabetes, although there were no differences in MI symptoms. It indicates that the process from symptom onset to the decision to seek medical care is complex and it raises the question if the decision making process to seek care for MI differs for patients with diabetes.

14
OBSTACLES FOR TURNING POINTS IN SELF-MANAGEMENT OF TYPE 2 DIABETES

Jutterström L., Hörnsten Å.
Department of Nursing, Umeå University, Umeå, Sweden

Background
To live with type 2 diabetes without complications often requires lifestyle changes which can be demanding. A problem is that on the one hand well-being deteriorates due to the demands of self-management of the illness. On the other hand well-being decrease when complications occurs due to the illness. A paradox is that in order to live well, self-management activities must be performed. Triggers for turning points in self-management have previously been described as experiences of being in a life and death struggle; being at a crossroad with no return; being the one who decide and being the one who can change the outcome. There is lacking existing literature about aspects that prevent turning points to happen in self-management of type 2 diabetes. Therefore, the aim of this study was to describe obstacles for such turning points.

Method
A secondary analysis of interviews about turning points in self-management among eighteen people diagnosed with type 2 diabetes within two years was performed. The interviews were analyzed using qualitative content analysis.

Result
The preliminary result shows that obstacles for turning point in self-management of type 2 diabetes were insufficiently processed and integrated illness; ambiguity about the severity of diabetes and finally shame, doubt and guilt connected to having diabetes.

Conclusion
Integrating illness in daily life is time consuming. Feelings of shame and doubt can lengthen the illness integration process. Diabetes specialty nurses preferably use patients' views of diabetes and its severity as well as feelings of shame and doubt in consultations with patients in order to support them sufficiently.

Keywords
Illness integration, Self-management, Turning point, Type 2 diabetes

15
NURSING RESEARCH IN THE NORDIC COUNTRIES – AN OVERVIEW OF THE LITERATURE, 1979–2009

Graue M. PhD[1], Iversen M.M. PhD[1], Sigurdardottir A.K. PhD[2], Zoffmann V. MPH, PhD[3], Smide B. PhD[4], Leksell J. PhD[4]
[1] Centre for Evidence-Based Practice, Bergen University College, Bergen, Norway
[2] Department of Health Sciences, University of Akureyri, Iceland
[3] Steno Diabetes Center, Gentofte, Denmark
[4] Department of Medical Sciences, Uppsala University, Sweden

Background
The literature is a way of disseminating new knowledge from research studies to clinicians. It is essential that the literature report on findings that can inform practice, and that others use the knowledge to further build evidence for practice.

Aim
To scrutinize the total number of scientific articles on diabetes nursing research in Denmark, Iceland, Norway and Sweden over a period of 30 years.

Method
The search strategy was designed to retrieve publications related to the development of diabetes nursing research as a substantial contribution to multidisciplinary research in diabetes care. An electronic search was performed for potentially relevant articles between January 1, 1979 and December 31, 2009 using the MEDLINE, Medline in process, EMBASE, CINAHL, PsycINFO and Cochrane databases.

Results
A total of 132 publications were included from the electronic search, and 32 articles resulting from manual search. Thus, this study examined 164 publications; 52% of the publications were from Sweden (n = 86), 28% from Norway (n = 45), 14% from Denmark (n = 23) and 6% from Iceland (n = 10). With the production weighted according to population, Iceland, Norway and Sweden were above average, and Denmark far below average. The 164 papers were published in 63 journals, with most published in multidisciplinary journals (70%). Significant contributions were given only by a few nurses within each country; one forth had published five or more papers, Most studies originated from a single country, with 26 of 164 including international co-authors.

Conclusion
To fulfill knowledge gaps in practice, action is needed to build stronger groups of nurse researchers. Attention must be given to the benefits of international cooperation in research and to designing multicenter research trials.i

16
DOES TYPE 2 DIABETES AFFECT SEXUAL FUNCTION IN WOMEN?

Demirgoz Bal M.[1], Dereli Yilmaz S.[2], Celik S.[3], Dinccag N.[3], Kizilkaya Beji N.[4], Yalcin O.[5]
1 Health College of Karamanoglu Mehmetbey University, Karaman, Turkey
2 Department of Midwifery, Faculty of Health Sciences, Selcuk University, Turkey
3 Istanbul University, Istanbul Faculty of Medicine, Division of Endocrinology and Metabolism, Istanbul, Turkey
4 Department of Gynecologic and Obstetrics Nursing of Florence Nightingale Nursing Faculty, Istanbul University, Istanbul, Turkey
5 Istanbul University, Istanbul Faculty of Medicine , Department of Obstetrics and Gynecology, Istanbul, Turkey

Background: Type 2 diabetes is an important systemic disease in women, which affects sexual functions.

Aim: This study was aimed at assessing the sexual life of women with type 2 diabetes aged between 24 and 47years.

Material-Method: Among the women with type 2 diabetes,who applied to the Diabetes Outpatient Clinic in Istanbul Faculty of Medicine,Istanbul University,72 women with active sexual life and had no other systemic disease than diabetes,were included as the study group,while 100 women with active sexual life,who had no systemic disease,were included as the control group. Data were collected using International Female Sexual Function/IFSF(short form) and a questionnaire that determines the factors associated with the socio-demographic, diabetic and obstetric symptoms of women,which was prepared by the authors. Approval of the ethical committee of the institution was obtained for the study. Analysis were assessed using chi-square and student t test.

Results: The mean age of the diabetes and control groups was (n:76)41,47±5,5 and (n:100)36,52 ±8,13years,respectively. When IFSF scores of the study and control group were compared, there was a significant difference(Table 1).

Table 1: Mean IFSF scores of diabetic women and control group

	Diabetic women Mean score	Normal women Mean score	Value
Sexual relationhip satisfaction	4.53±3.97	8.69±1.96	p<0.0001*
Desire	3.92±2.43	7.09±1.91	p<0.0001*
Satisfaction sexual function	4.06±2.65	8.14±2.23	p<0.0001*
Degree lubrication	2.50±2.28	4.36±1.05	p<0.0001*
Ability achieve orgasm	2.05±1.33	3.89±1.20	p<0.0001*
Clitoral sensation	2.02±1.29	3.51±1.02	p<0.0001*
Total IFSF	18.94±11.62	34.84±8.43	p<0.0001*

*student t test

(contd over)

When they were compared considering that the diabetic women with total IFSF score of 30 or less were assessed as having low sexual function(+), a significant difference was obtained in terms of HbA1c,BMI and diabetes duration($p<0.0001$).

Conclusion: Our study results showed that type 2 diabetes in women had a significant negative effect on their sexual functions.Thus, the healthcare professionals, who are studying diabetes,should also consider their sexual functions,which is an important parameter of their life quality,with due care and provide consultation services and refer to the related units,if required.

17
DEVELOPING PARTICIPATORY PATIENT EDUCATION – WHAT ARE THE NEEDS OF HEALTH CARE PROFESSIONALS (HCP)?

Glindorf M., Selzer Terkildsen R., Trustrup U., Rasmussen A. Podiatrist, Vinther L. Dietician, Voigt J.R.
Steno Diabetes Center, Gentofte, Denmark

Background: Since 2000 the Type 2 Clinic has performed a concept, based on the results of the Steno 2 Study. Patients are referred for an 8 months educational course, witch focuses on individual risk assessment and multifaktoriel intervention with partly group based, motivating patient education. The clinic works as a multidisciplinary team, with nurses in a key position as anchorwomen. The clinic wants to develop the pedagogical aspect from a more traditional educational approach, into a new participatory health educational approach, developed locally in collaboration between HCP and researchers.

Aim: A key purpose of the project is to develop a competence development programme for HCP teaching participatory diabetes patient education.

Method: The data are collected through qualitative methods: Observations, focus groups, individual interviews with patients, workshops, as well as video recordings of education sessions, desk research and a critical inquiry. In the analyses we applied a health professional, a patient, and a researcher perspective.

Results: The challenge is to change the mindset of the HCP. We change a traditional setup with focus on providing information on diabetes to a problem- based approach with participation and dialogue. Developing the role of the HCP is crucial when performing participatory patient education. We find the following key elements crucial for competence development:

- Explore HCP self perceived needs for new competences. A model for competence development was used as a tool for reflections on the different roles in the teaching process
- Introduce and test new dialogue based tools and methods
- Explore educational challenges in facilitating group sessions
- Challenge the role of being an expert in diabetes

The development of competences has to be an ongoing process. The process seems to change the mindset and the perceived competences fundamentally.

Conclusion: A participatory research approach, based on workshops can be a fruitful part of the learning processes in competence development. The process has to be tailored to the local context and culture to make it successful. Training and getting experiences with dialogue and facilitation is extremely important to HCP.

18
PATIENTS WITH FIRST SYMPTOMS OF DIABETIC FOOT – WHO TAKES CARE OF THEM?

Šutić N., Zeljković M.
Merkur University Hospital, Vuk Vrhovac University Clinic, Zagreb, Croatia

Background
Due to a lack of an appropriate curriculum, podiatric practices are not a part of diabetes care in Croatia.

Aim
This study aimed to determine the degree of self-care and help-seeking behaviour in patients with first symptoms of diabetic foot without an active process on foot, and to identify prevailing forms of foot care in this risk patient group.

Method
Sixty-three patients hospitalized for regular annual check-up (25% with T1DM, 87% with neuropathy, 47% female, aged 58 yrs ± 11, diabetes duration 18 yrs ± 10, HbA1C 7.4% ± 1.1) were assessed for foot self-care using the corresponding subscale of the Summary of Diabetes Self Care Activities (SDSCA), and asked to fill in a questionnaire inquiring into their worry about foot complications, availability of related health services and their usage of them. Chi-square was used to compare the obtained results with respect to gender. Associations between help-seeking behaviour and diabetes-related variables were determined by Kendall Tau correlations.

Results
The obtained SDSCA score indicated that 58% of the reported one week-period was covered by self-care activities. Eighty-one percent of the examined patients expressed worries about a possible diabetic foot development. However, only a part of them reported using chiropody (29%), orthopaedic (16%) and surgeon services (11%). Use of orthopaedic aids was reported in 37% cases. No gender differences were found in foot self-care or in seeking chiropody and surgeon services (all $p>0.05$). Female patients used orthopaedic services more frequently (30% vs 7.5% Chi-square =4.16 $p=0.04$).

Utilisation of chiropody services was shown to be inversely associated with the presence of neuropathy (Kendall Tau = -0.29 $p<0.05$) and positively with a utilisation of orthopaedic services (Kendall Tau = 0.30 $p<0.05$).

Utilisation of orthopaedic services was associated with foot self-care and worry (Kendall Tau = 0.21 and 0.27 respectively $p<0.05$), and with the utilisation of chiropody services (0.26 $p<0.05$).

Conclusion
Utilisation of health services in patients at risk for foot complications is considered suboptimal. Psychological variables including foot self-care and worry were associated with treatment-seeking behaviour better than the disease-related variables.

19
EFFECT OF RAMADAN FASTING ON GOOD METABOLIC CONTROL IN PATIENT WITH TYPE 2 DIABETES

Celik S.[1], Pinar R.[2], Kubat Uzum A.[1], Salman S.[3] , Satman I.[1]
[1] Istanbul University, Istanbul Faculty of Medicine, Division of Endocrinology and Metabolism, Istanbul, Turkey
[2] Faculty of Health Sciences, Department of Nursing and Health Services, Yeditepe University, Istanbul Turkey
[3] Acıbadem University, Department of Internal Medicine, Endocrinology and Metabolism Clinic, Istanbul, Turkey

Background
Fasting continues for thirty days and may cause metabolic worsening in diabetic patients. Although diabetic Muslim patients are exempt from fasting, they mostly stand out to fast.

Aim
We aimed to assess the fasting situation and changes on good metabolic control in patient with type 2 diabetes.

Methods
Twenty-six good metabolic controlled patients with type 2 diabetes who were followed-up in Diabetes Outpatient Clinic of a University Hospital were asked about changes in life style, drug use and eating habit and hypoglycemia just 10 days before Ramadan started and 10 days after Ramadan lasted. Also, weight, HbA1c, fructosamine, C-peptide, insulin, lipid profile were compared.

Results
Study group was composed of 18 females (69,2%;mean age 55,8±6,1 years) and 8 males (30,8%;mean age 62,1±7,3 years). Mean HbA1c, BMI was 6.8 % and 31,8±3,5kg/m2,respectively. Seventeen patients (65,4%) were recieving oral antidiabetic drugs. Mean duration of diabetes was 8.9±7.1years (ranged 1 to 30). Mean duration of fasting was 26,8±4,6 days(ranged 8 to 29). Twenty-three (88,5%) patients pointed out that they arranged morning and evening medications according to fasting hours and skipped the doses between dawn and sunset. Five patients (19,2%) changed their medication schedule, 22(84,6%) changed diet routine and four (15,3%) changed their daily physical activities during fasting. Eleven patients (42,3 %) changed sleeping hours, 16(61,5%) changed eating habits and food preferences. Fifteen patients (57,7%) experienced at least one episode of hypoglycemia, all hypoglycemia experiences were mild during fasting period in Ramadan and no emergent health problem was noted. Weight, HbA1c, fructosamine, C-peptide, lipid profile did not change before and after Ramadan.

Conclusion
Ramadan seems not to effect metabolic control in patients who are compliant to disease management. Informing the patients about importance of self monitoring blood glucose and closer follow-up during fasting is needed.

20
LOWER URINARY TRACT SYMPTOMS IN DIABETIC WOMEN WITH AND WITHOUT URINARY INCONTINENCE

Dereli Yilmaz S.[1], Demirgoz Bal M.[2], Celik S.[3], Kizilkaya Beji N.[4], Dinccag N.[3], Yalcin O.[5]

[1] The Department of Midwifery, Faculty of Health Sciences, Selcuk University, Konya, Turkey.
[2] Health College of Karamanoglu Mehmetbey University, Karaman, Turkey.
[3] Istanbul University, Istanbul Faculty of Medicine, Division of Endocrinology and Metabolism, Istanbul, Turkey. [4] Department of Gynecologic and Obstetrics Nursing of Florence Nightingale Nursing Faculty, Istanbul University, Istanbul, Turkey.
[5] Istanbul University, Istanbul Faculty of Medicine, Department of Obstetrics and Gynecology, Istanbul, Turkey.

Background: It is important to determine lower urinary tract symptoms(LUTS) in diabetic women with having urinary incontinence for prevention of infection.

Aim: To compare LUTS of diabetic continent and incontinent women and related factors.

Methods: Applying to the Diabetes Outpatient Clinic in Istanbul Faculty of Medicine, Istanbul University between May-December 2011, 77 diabetic incontinent women and 88 diabetic continent women were included into the descriptive study. The data were collected via a questionnaire prepared by researchers, including socio-demographic,diabetic,obstetric and gynecologic features of women,and factors regarding urinary symptoms, and the scale of The Bristol Female Lower Urinary Tract Symptoms (BFLUTS-SF). For the study,permission was obtained from the ethical board. To evaluate the data,percentage,standard deviation,t-test and correlation analysis were used.

Results: No statistically significant difference was present between diabetic continent and incontinent women as regards age,BMI and duration of diabetes (i:56.2±8.6, c:56.0±10.5;i:31.6±4.6,c:30.5±4.5;i:10.6±6.7,c:10.6±7.7,respectively)($p>0.05$).In incontinent women, fasting and postprandial blood glucose levels, and HbA1c were statistically and significantly higher(i:168.4±84.6,c:133.2±36.1;i:181.2±75.1, c:152.0±40.3;i:7.8±1.6,c:6.9±0.9,respectively)($p<0.05$).Between two groups,a statistically significant difference was present in terms of average scores of BFLUTS-SF total and subscales($p<0.05$). In light of logistic regression analysis, level ofHbA1c was determined to be associated at intermediate level with microalbuminuria, total BFLUTS-SF and such subscales as filling,voiding, incontinence symptoms, sexual function and quality of life (r=0.461,0.276,0.243,0.171,0.260,0.185,0.212, respectively). A strong correlation was found between level of microalbuminuria and symptom of voiding (r=0.649). In those with the complaints of hypertension, dysuria, the history of frequent vaginal infections and itching, total score of BFLUTS-SF was statistically and significantly higher($p<0.05$).

Conclusion: Consequently, it may be suggested that LUTS in women whose DM is poorly managed are increased. Therefore, healthcare professionals are proposed to follow diabetic women more meticulously and to evaluate as to LUTS.

21
DETERMINATION OF LOWER URINARY TRACT SYMPTOMS OF WOMEN WITH AND WITHOUT DIABETES

Dereli Yilmaz S.[1], Demirgoz Bal M.[2], Celik S.[3], Rathfisch G.[4], Kizilkaya Beji N.[4], Dinccag N.[3], Yalcin O.[5]

[1] The Department of Midwifery, Faculty of Health Sciences, Selcuk University, Konya, Turkey.
[2] Health College of Karamanoglu Mehmetbey University, Karaman, Turkey.
[3] Istanbul University, Istanbul Faculty of Medicine, Division of Endocrinology and Metabolism, Istanbul, Turkey
[4] Department of Gynecologic and Obstetrics Nursing of Florence Nightingale Nursing Faculty, Istanbul University, Istanbul, Turkey.
[5] Istanbul University, Istanbul Faculty of Medicine , Department of Obstetrics and Gynecology, Istanbul, Turkey.

Aim

The study was planned to determine lower urinary tract symptoms(LUTS) of women with type 2 diabetes(DM) and healthy controls.

Methods

Applying to the Diabetes Outpatient Clinic in Istanbul Faculty of Medicine, Istanbul University, 249 women with type 2DM and 376 healthy controls, total 625 women were included into the study. Data were collected via a data collection form prepared by researchers to determine sociodemographic,diabetic,obstetric and gyneacologic features of women, and Bristol Female Lower Urinary Symptoms (BFLUTS-SF)to define urinary symptoms.Approval was obtained from the ethical board. In the assessment of the data,mean,standard deviation,Mean (Min-Max),t test and Mann-Whitney U tests were used.

Results

Mean age rates of diabetic women and healthy controls were 55.1±10.0 and 41.9±13.8, respectively.Among diabetic women, 31.6% and 22.7% of controls had given four births and over. Mean fasting blood glucose, postprandial blood glucose and HbA1c rates of diabetic women were 163.9mg/dl(75-560),186.5mg/dl (75-500) and 8.0mg/dL(1.1-13.6), respectively. Compared to LUTS in both groups,a significant difference was found to be present as to filling, voiding, incontinence,sexual function and quality of life as subscores of BFLUTS-SF,and total BFLUTS-SF scores($p<0.05$).

(contd over)

Table-1:Comparison of LUTS in women with type 2 DM and healthy controls [Mean (Min-Max)]

	DiabeticWomen	Healthy Controls	p*
Filling	6.07 (3-15)	3.24 (0-13)	<0.001
Voiding	3.47 (3-11)	1.24 (0-9)	<0.001
Incontinence	6.53 (5-20)	1.15 (0-11)	<0.001
Sexual Function	2.05 (2-5)	0.33 (0-4)	<0.001
Quality of Life	6.10 (5-19)	1.77 (0-16)	<0.001
Total BFLUTS	24.17 (18-58)	7.73 (0-38)	<0.001

* In the comparison of data, Mann-Whitney U test was used.

Conclusion

As a result, diabetes with good progression could be suggested to increase LUTS in diabetic women. Therefore, healthcare professionals are suggested to follow diabetic population more meticulously and to evaluate them in terms of LUTS.

22
ADDITIONAL RISK FACTORS OF A TEN-YEAR CARDIOVASCULAR RISK IN PATIENTS WITH DIABETES MELLITUS

Snježana Gaćina
Merkur University Hospital, Vuk Vrhovac University Clinic for Diabetes, Endocrinology and Metabolic Diseases, Dugi dol, 4a Zagreb, Croatia

Aim

To identify variables which affect a 10-yr risk of cardiovascular diseases in persons with diabetes using descriptive statistics.

Method

The study included 140 patients admitted to the Clinic. An 8-item CVD Risk knowledge test was applied and biometric data collected. Ten-year cardiovascular risk was calculated by Framingham's formula which includes respondent's years of age, sex, systolic pressure, smoking status, left ventricle hypertrophy, total and HDL cholesterol, and diabetes mellitus. Logistic regression was used to assess whether and how diabetes duration, A1c, BMI and knowledge as assessed by the questionnaire affect the 10-yr cardiovascular risk in patients with diabetes.

Result

There were 41% of women and 59% of men, aged 58.68 ± 11.52 yrs, of whom 19% had type 1 DM and 81% type 2 DM, and 22% of whom were smokers. Mean systolic pressure was 141.36 ± 18.67 mmHg, diabetes duration 16.57 ± 9.94 yrs, and knowledge score 3.39 ± 1.6. Stressful life events over the previous year were reported by 59% respondents; cardiovascular risk was low in 24% of the patients, medium in 34% and high in 42%; BMI was low in 1% of the respondents, normal in 25% and high in 74%; and A1c was normal in 21% of the patients, medium in 29%, and high in 51%. Logistic regression indicated that BMI and knowledge significantly affected the 10-yr cardiovascular risk ($p<0.0001$; $p=0.0405$), whereas DM and A1c did not have a significant influence ($p=0.4918$; $p=0.1931$). The odds ratio for an increase in patient's risk rises by 14.31 times with each increase in BMI category. With each correct answer in the total knowledge score the odds ratio for an increased cardiovascular risk decreases by 0.8 times.

Conclusion

To reduce a 10-yr cardiovascular risk in persons with diabetes, attention should be turned to decreasing BMI and increasing knowledge about cardiovascular risks in addition to conventional risk reduction measures.

23

EFFECT OF TELEMEDICINE CONSULTATION OF LEG AND FOOT ULCERS: A SYSTEMATIC REVIEW

Henanger MT, MSc cand[1], Nordheim LV, MSc[1] Iversen MM, PhD[1, 2]
[1] Centre of Evidence-Based Practice, Bergen University College, Bergen, Norway.
[2] Department of Medicine, Section of Endocrinology, Stavanger University Hospital, Norway.

Background

The Norwegian Coordination Reform promotes the use of information and communication technology to improve access and delivery of health care.

Aim: To assess the effect of telemedicine on clinical, behavioral and care coordination outcomes in patients with leg and foot ulcers.

Method

We performed a systematic review of randomized and quasi-randomized controlled trials, controlled before-and-after studies, and prospective cohort studies. Electronic databases were searched for relevant studies. Retrieved publications were assessed against predefined inclusion criteria and relevant studies were independently assessed by two persons using the Cochrane Collaborations' risk-of-bias tool. A narrative synthesis of the results was undertaken and their robustness was assessed by using GRADE.

Result

Two studies met the inclusion criteria. In a prospective cohort study diabetic ulcer status was assessed by two independent physicians, either on-site or remote via the Web by transmitting digital images of the ulcers. Moreover, change in patient attitudes to telemedicine and consultation time was measured. A controlled before-and-after study measured the effect of real-time interactive video consultation in management of diabetes-related foot ulceration, with healing as outcome. None of the studies found significant differences in outcomes between patients receiving telemedicine and traditional follow-up. However, both studies had a high risk of bias.

Conclusion

There is insufficient evidence to provide an unambiguous answer to whether telemedicine consultation of leg and foot ulcers is effective when compared with traditional follow-up.

24

STRESS AND TYPE 2 DIABETES

S. Bousmpoulas[1], F. Bakomitrou[2], K. Tolia[3], A. Kalantzi-Azizi[4], E. Karadimas[5], A. Katopodi[6], V. Spinaris[7], S. Galinaki[8], A. Papazafeiropoulou[9], G. Lyrakos[10], S. Pappas[11].
[1] Pathologist - Diabetologist, Associate Director, C. Department of Internal Medicine, Diabetes Centre Manager, General Hospital Nice, Athens.
[2] Clinical psychology-psychotherapist (MSc., PhDc.), Diabetes Centre Manager, General Hospital Nice, Athens, Greece · University of Athens, Athens, Greece.
[3] Psychology, University of Athens, Athens, Greece.
[4] Professor of Clinical Psychology, University of Athens, Athens, Greece.
[5] Associated Professor of Health Clinical Psychology, University of Crete, Crete, Greece.
[6] Health visitor, General Hospital Nice, Athens.
[7] Psychiatry, Director, C. Department of Internal Medicine, General Hospital Nice, Athens.
[8] Health Psychology MSc., University of Sussex, UK.
[9] Pathologist - Diabetologist, General Hospital Nice, Athens.
[10] Health Psychology MSc. PhDc., University of Athens, Greece.
[11] Pathologist - Diabetologist, Director, C. Department of Internal Medicine, Diabetes Centre Manager, General Hospital Nice, Athens.

Background

The World Health Organization reports that in 2006 the number of people suffering from diabetes has surpassed the 170 million and is expected to double by 2030. In Greece, 10% of the general population becomes ill with diabetes. The role that stress plays in the appearance and the treatment of diabetes is a subject that has particularly preoccupied the experts. Due to the general concern for the increase of diabetes, the conduction of this research for the estimation of Greek data seemed appropriate.

Aim

This study concerns the attitude of patients towards Type 2 Diabetes and how patients perceive stress. The correlation between the disorders and the demographic characteristics of the sample were also studied.

Method

The population that participated was 120 patients, men and women, in random analogy, 30 to 80 years old of the Diabetes clinic of the General State Hospital of Nikaia- Piraeus. For the sample collection, systematic sampling method was used.

To collect the data a single questionnaire was used, which was divided into three parts. The first part consisted of an improvised questionnaire of demographic data. The second part included the Diabetes Attitude Scale - 3, DAS, and the third part covered the Perceived Stress Scale (PSS).

(contd over)

Result

Based on the findings seems that despite the fact that the majority of the patients check their blood sugar every day , they cannot keep their blood sugar low. Although according to the bibliography, heart problems appear in great proportions in patients with diabetes, in our sample only 7,02% have some sort of cardiac problems.

Conclusion

However, stress levels are affected by health problems such as blood pressure, neuropathy, rheumatism, eye diseases, heart problems, diabetic coma and hypoglycaemic shock. Finally, gender, time of disease onset, educational level and also the knowledge about diabetes appear to significantly affect the extent to which a person considers his life as a demanding and stressful.

25
PATIENT`S PERCEPTIONS ABOUT DIABETES

Zacarias L., Paiva A., Rebola A., Matos D., Nunes H., Correia I., Teixeira L., Serrabulho L. RN MED, Dingle M., Raposo J.D PhD
APDP – Diabetes Portugal, Lisbon, Portugal

Background: Therapeutic Education is a fundamental tool for a better adherence to chronic diseases' treatment and it is considered by World Health Organization as a priority.

One of the Therapeutic Education objectives is to know and better understand the person with diabetes, knowing their perceptions, needs and difficulties to better correspond to their treatment priorities.

Aim: Evaluate patients' perceptions about diabetes.

Method: We asked first time patients who came to APDP to write on a card: *What does Diabetes means to me?* A qualitative study was conducted to analyze the perceptions.

Result: 102 persons with DM participated (46 female). Age average - 57 years. Diabetes evolution average - 9 years. HbA1c average 8,8%.

69 participants do oral medication, 19 do insulin therapy, 14 patients do both.

The main categories identified of the analysis were:

• *Emotional Perceptions (38,2%)* with two sub-categories:
  - Negative (77%) - "Ungrateful and suffering disease" "My biggest headache"
  - Positive (23,1%) - Positive attitude to everyday living by being more healthy.

• *Diabetes Process (26%)* with three sub-categories:
  - Diabetes Seriousness (69,2%) – "A big health problem, very dangerous which can lead to death"
  - Pathofisiology Diabetes Process (23,1%) – "Lack of insulin and malfunctioning pancreas"
  - Diabetes Chronicity (7,7%) – "A lifelong heritage"

• *Diabetes restrictions (17,7%)* with two sub-categories:
  - Daily Activities (61,1%) – Permanent condition of a way of living
  - Nutrition (39%) – "Have to follow a healthy diet plan, not having a free choice of foods"

• *Self-Control (10,8%)* – "Glycemia evaluation and control, medication and carbon hydrates dosages"

• *Diabetes Complications (5,9%)* – "Amputations, blindness"

• *Self-Monitoring (2%)* – "Glycemia evaluations"

Conclusion: As for diabetes representations, patients involved in the study present high levels of negative emotional representation and diabetes seriousness.

The knowledge of patients' perceptions can help health care team to improve care and contribute to the promotion of person with diabetes' empowerment.

26
HEALTH AFFECTING BEHAVIOUR CHANGES IN ADOLESCENTS WITH TYPE 1 DIABETES MELLITUS

V. Bulikaite RN MSPH
Lithuanian University of Health Sciences, Department of Nursing, Eivenių 2, Kaunas, Lithuania

Aim
The objective of this research is to analyze changes of adolescents diabetes habits of nutrition, physical activity, smoking, and usage of alcohol before contracting diabetes and when 3, 6 and 12 month pass after the contraction of diabetes.

Material and methods
The study was conducted in Children Endocrinology department, Hospital of Kaunas University of Medicine. 90 adolescents of 13-17 years old with diabetes participated in anonymous questionnaire survey. Pre-test and post-test design was used to conduct the study. The Wilcoxon's paired sample test was used to determine the difference in groups.

Results
The study revealed that 46% who participated in the study did not eat regular before contracting diabetes. When 3, 6 and 12 months passed after the diagnosis of diabetes, the number of patients eating regular significantly increased. Before contracting diabetes, 5,6% of adolescents did not attend any sports. When the survey was repeated after 3 months, 63% of the surveyed claimed that they did not do any additional sports. After 6 and 12 months, the number of adolescents not doing any sports decreased to 20% ($p < 0,05$). Before contracting diabetes, 42,8 % of adolescents were smoking. When 3 months passed from contracting, 22,7% were smoking, after 6 months – 30,4% were smoking, and after 12 month – 39,7% admitted they were smoking. Before contracting diabetes, 26,7 % of the surveyed were taking alcohol. After 3 months, 7,9% of the patients admitted they were taking alcohol during the last three months, i.e. after diabetes had been diagnosed ($p < 0,05$). After 6 and 12 months, 20% of the patients admitted they were taking alcohol.

Conclusion
Three months after diagnosis of diabetes mellitus most of adolescents ate regularly, there were less of those who smoked, consumed alcohol and the lowest number of those who exercised when compared with findings of surveys conducted before diagnosis and after six or twelve months.

27
EVALUATION OF A STRUCTURED GROUP EDUCATION PROGRAMME FOR WOMEN WITH NEWLY DIAGNOSED GESTATIONAL DIABETES IN IRELAND.

Moloney Y., CMS Diabetes, Slevin J., Consultant Obstetrician, O'Hare J., Consultant Endocrinologist
Department of Midwifery, Obstetrics and Endocrinology, Mid Western Regional Hospital's, Limerick, Republic of Ireland.

Background
In 2008, the International Association of the Diabetes and Pregnancy Study Groups IADPSG sponsored a conference on Gestational Diabetes diagnosis and classification; they reviewed published results of works that examined associations of maternal glycaemia with perinatal and long-term outcomes. The IADPSG consensus panel concluded with predefined values for diagnosis of Gestational Diabetes. A structured group education programme for women with newly diagnosed gestational diabetes may be useful with the increasing numbers following the implementation of the IADPSG guidelines (2010).

Aim
This evaluation aimed to use a pre and post knowledge questionnaire to evaluate the effectiveness of a structured gestational diabetes group education programme.

Method

A convenience sample of women with newly diagnosed gestational diabetes in a Regional Hospital in the Republic of Ireland was used, consisting of valid responses from (100%, n=358) women attending the education programme delivered using facilitation skills.

Result
The attendance rate for the structured education programme was 93%. The mean age of the women was 32 years, and a mean Body Mass Index of 30m2/kg. Using a 75gr Oral Glucose Tolerance Test the mean results were 5.2 mmol /l, 10.5mmol/l, 7.4mmol/l. The knowledge questionnaire contains twelve questions on diet, diabetes, pregnancy and fetal wellbeing. An identical questionnaire was filled in by the women before and after the education session. The women demonstrated a 19.7% increase in knowledge after the session increasing from a mean mark of 7.6 to 9.1. 14.6% of the women required insulin and 42.8% of the women required caesarian section . The mean baby weight was 3426g.54% of the women breastfed. 24% of the babies developed neonatal hypoglycaemia <2.6mmol/l and 26% of the required admission to the neonatal unit for various reasons.

Conclusion
In all, 358 (100%) completed the pre and post programme evaluation and demonstrated positive outcomes in empowerment, knowledge and fetal outcomes at a group level.

28
THE CONNECTION BETWEEN THE GLYCEMIC CONTROL, BODY MASS INDEX AND BODY FAT TISSUE RATIO IN PATIENTS WITH TYPE 2 DIABETES

Nataša Kranvogel Solina RN, prim. Miro Čokolič MD
Univeristy Medical Centre, Maribor, Slovenia

Background
Patients with type 2 diabetes (T2DM), a lower body-mass index (BMI) and better regulated T2DM, have less potential for the onset of late complications of diabetes (DM). It is assumed that the proportion of fat tissue in body significantly offsets late complications of T2DM and influences quality of life.

Aim
The aim of the reasearch was to analise the determinated data, in order to find out if patients with T2DM and lower HbA1C also have lower BMI and smaller proportion of body fat tissue.

Method
20 female and 29 male patients with T2DM were randomly chosen for a dual X-ray absorptiometry – DXA (Hologic Explorer) measurements, additionally the whole body scan was performed and percentage of body fat was measured.

BMI was calculated and glycemic control was checked based on HbA1C values (Bio - Rad Variant II).

Results
The data analysis showed as follows:

- Patients with T2DM and better glycemic control, possess also a lower percentage of fat tissue in the body (HbA1C < 6.5%, average share of fat 34%; HbA1C > 6.5%, average share of fat 38.85%),
- Patients with T2DM and better glycemic control, have lower BMI (HbA1C<6.5%, BMI 29.6 kg/m2; HbA1C > 6.5%, BMI of 32.35 kg/m2).

Conclusion
The research results showed that patients with poorly controlled T2DM have higher BMI index and more fat tissue in the body than those with well controlled T2DM. Regulation of diabetes, BMI and body fat tissue percentage of patients with diabetes are essential factors in prevention of late complications associated with diabetes , since they are not important only from medical, but also from aesthetic and psychological perspective. Proper nutrition, healthy lifestyle and regular physical exercise can greatly improve the quality of life and reduce the onset of long-term complications of diabetes. Therefore, promotion of physical activities, proper diet and a healthy lifestyle is the main task of each diabetes team.

28
THE IMPACT OF LAUGHTER YOGA ON BLOOD GLUCOSE LEVELS

Simona Sternad RN, prim. Miro Čokolič MD, Špela Stangler Herodež PhD, assistant Proffesor, Martin Rakuša MD, Simona Krebs RN,
UMC Maribor and International Institute for Laughter, Slovenia

Introduction
Laughter yoga is a combination of breathing and movement exercises. One minute of intense exercise with laughter from the heart, is equivalent to ten minutes of running or rowing, or ten minutes of exercise at the fitness equipment.

Aim
The aim of the study was to examine the immediate effect of laughter on blood glucose levels in people with type 2 diabetes (DB2), which is not treated with insulin and its impact on welfare.

Methods
On the day of the study, participants eat lighter meals till 10.00 hour in the morning. Upon arrival (12.00), we measured their blood glucose levels, then they eat lunch (250 kcal). After 90 minutes presentation followed an intense 30 minutes exercise of laughter yoga. After 120 minutes, we re-measured blood glucose levels. The control group consisted of participants without laughter exercise. With a questionnaire we also assessed if the laughter yoga has an immediate effect on: enthusiasm, positive attitude, feeling of better ventilatory, energy level, mood, ability laughing for no reason, optimism, stress level and the physical and mental relaxation.

Results
We analyzed the results of 69 participants (35 with laughter yoga). Results were statistically analyzed using the software VassarStats, where we tested the statistical differences within and between observed groups using two sample equid variance Student's t-Test. The results showed that the glucose value remained unchanged after exercise (8.9 mmmol/l before and 8.9 mmmol/l after), but participants without training had a higher glucose up by 0.7 mmol/l (10.1 mmol / l before and 10.8 mmol / l after, $p = 0.01$).

Conclusion
An intense 30 minutes of laughter yoga significantly reduced blood glucose levels immediately after exercise and has a positive impact on our health and wellbeing. Laughter yoga should be a new complementary method of pre-existing therapy or self-help method for people with DB2. It can certainly contribute to their better quality of life.

FEND AWARD

1999	T. Birdsall	UK
2000	D. Weisman P. Nikkanen	Israel Finland
2001	A. Joergensen	Denmark
2002	A. Munzinger B. Osterbrink C. Nonn	Germany
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

DESG AWARD

2001	J. Leksell	Sweden
2002	J. Charlton	Scotland
2003	M. Vidal	Spain
2004	B. Osterbrink R. Jackie G. Lange M. Nichting M. Wernsing E. Donath C. Nonn A. Munzinger	Germany
2005	L. Feulner-Krakow	Germany
2006	M. Jansa	Spain
2007	L. Serrabulho	Portugal
2008	M. Glindorf	Denmark
2009	E. Orvik	Norway
2010	M. Due Christensen	Denmark
2011	A. Paiva	Portugal

First Announcement
18th FEND Annual Conference

Fri-Sat 20-21 September 2013
Barcelona, Spain

On behalf of the Foundation of European Nurses in Diabetes we cordially invite you to attend the 18th Annual Conference of FEND

Deirdre Kyne-Grzebalski
FEND Chairman

Anne-Marie Felton
FEND President

Conference Programme Enquiries

Mrs Deirdre Kyne-Grzebalski
37 Earls Drive
Denton Burn
Newcastle on Tyne
NE15 7AL

+44 (0)191 274 8088
info@fend.org

Conference Exhibition Enquiries

Nadine van Campenhout
Abdijmolenstraat 41
9031 Drongen Gent
Belgium

+32 479 66 13 06
exhib2013@fend.org

FEND Membership & Conference Registration Enquiries

Kristin de Backer
fend.membership@fend.org
registration2013@fend.org

www.fend.org

49th EASD Annual Meeting
23-27 September 2013
www.easd.org

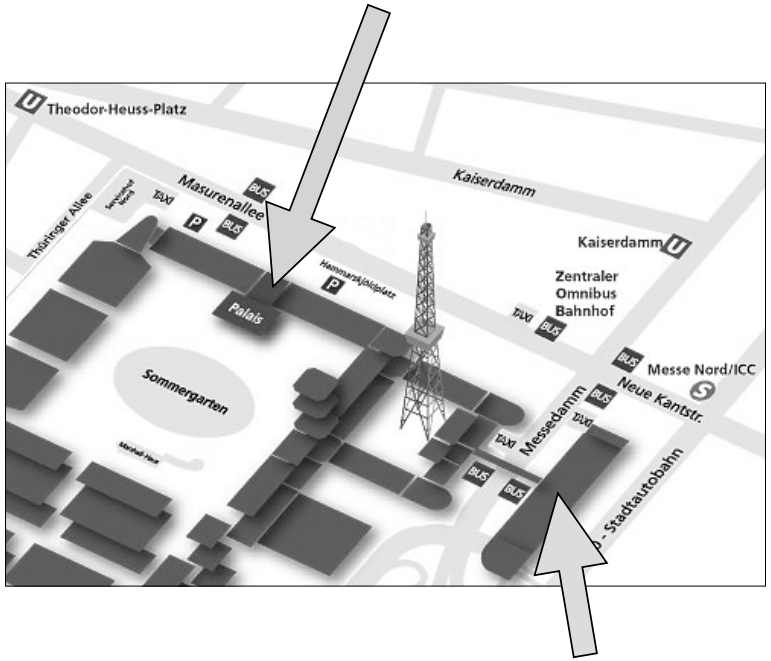
FEND CONFERENCE DINNER

Friday 28 September

19:30 Pre dinner cocktails
20:00 Conference Dinner

Venue

Palais am Funkturm



FEND Conference @ ICC

Location Plan

Company	Stand
Abbott	**B**
Artsana	6
Bayer	18
Becton Dickinson	11-12
Lilly	**A**
Medtronic	1

Company	Stand
Menarini	7-8
Mendor	13
Novo Nordisk	**C**
Roche	9-10
Sanofi Aventis	**D**
Ypsomed	4-5