XII International
Primary Care Diabetes Europe
conference

October 26-27th 2012
Barcelona (Spain)

www.pcdeurope.org

PCDE
primary care diabetes europe

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Welcome

Dear Friends,

First of all, on behalf of the city of Barcelona, I would like to say that it is an honour for us to host your conference. I am fully convinced that you will be able to enjoy the city's attractions while attending this important scientific meeting.

As health delegate for Barcelona City Council, I have, since the very first day, been able to share with everyone the goal of improving the quality of life of the whole community, all of us together building a healthy Barcelona. Our commitment is to improve and safeguard the health of the community through the promotion of healthy lifestyles and disease prevention. During your stay you will realise that in the field of diabetes we guarantee the best medical support for patients and that we are fully committed to collaboration with related organizations and social initiatives, such as the activities of World Diabetes Day, held on November 14th, when we light up the facade of the city hall.

You all work with one of the most common diseases in the world. In Catalonia, diabetes affects over 800,000 people, whether they know it or not.

These same values need to be consolidated at all levels in the European health system: informed patients who take responsibility for their own health, highly efficient primary care and specialised services, with research at the forefront. The conference will devote time to all this, especially to applied clinical research in diabetes, new therapies, and nutritional therapy. And there are other important participants, such as the pharmaceutical industry, which plays a key role and has demonstrated high levels of excellence in innovation aimed at the wellbeing of the community.

Finally, just a reminder: the conference is being held in a region, Catalonia, and in a city, Barcelona, situated in the vanguard in Southern Europe in terms of health resources and projects. For the city's health department, it is crucial to foster innovation in the life sciences, consolidate our position as a focal point of healthcare and cutting-edge research, with centres respected worldwide, and promote excellence in both the public and private healthcare sectors. It is surely these aspects that draw people from all over the world to visit us every year to receive top-quality medical care. And I have no doubt that your meeting will help to raise the prestige of the city.

I hope these lines have successfully transmitted the city's commitment and desire to help make the **XII International Primary Care Diabetes Europe Conference** an overwhelming success.

Cristina Iniesta
Health Delegate, Barcelona City Council

Dear Colleagues,

It is a very great honour and a pleasure to welcome you to the **XII International Primary Care Diabetes Europe Conference** 2012 to be held in Barcelona.

Diabetes mellitus is a threat to the health of many people. Current estimates suggest that around 50 million people in Europe are suffering from this disease, which could lead to other serious chronic complications. Furthermore, experts are predicting a steep rise in the number of people with diabetes worldwide in the years to come. This means that progress in prevention and therapy remains a high priority.

Primary care is a main resource in the health care system and plays a key role in the prevention and control of diabetes. PCD Europe is a driving force behind health care, education about diabetes and its prevention. Acknowledging this, the topic of the opening lecture is "The importance of primary health care in chronic disease management".

Furthermore, the XII International PCDE Conference, with its interesting scientific programme, affords a wonderful meeting place to exchange thoughts and opinions. It provides the perfect opportunity to impart news and views, to communicate information and to hear about colleagues' work.

My best wishes to all the participants at the Conference.

Josep Mª Pou
President of Advisory Committee on Diabetes,
Catalan Government

Dear Participants,

We are delighted to welcome you to the **XII International Primary Care Diabetes Europe (PCDE) Conference** which we celebrate here in Barcelona, Spain, on 26 and 27 October 2012.

The growing role of primary care professionals (GPs, as well as nurses, dieticians, podiatricians, psychologists, pharmacists and others) in addressing the burden of (type 2) diabetes, means it is increasingly important to expand the educational activities of PCDE, the leading pan-European platform for primary care diabetes.

From this perspective, and as PCDE chairman, I can share with you my pride that, for the first time in PCDE's history, we have succeeded in organising a full, stand-alone, two-day conference with over 370 delegates from all over Europe.

Thanks to your growing interest we can offer you valuable lectures by leading diabetes authorities. You're invited to present your own research outcomes and discuss them with your international colleagues (during the Poster walk) and we offer workshops for improving daily practice. Besides, it is an honour to announce the EACCME European Accreditation to this conference for up to 11 European CME credits.

During this conference, the 4th Paul Cromme award will be handed over as a lifetime achievement award to Mrs. Anne Felton, a diabetes specialised nurse, the co-founder and president of the Federation of European Nurses in Diabetes (FEND), a former PCDE board member and current IDF global vice president.

Thanks to our valued sponsors, three satellite symposia will be offered, in parallel to the conference, all of them focussing on the specific needs of those people living with diabetes and new therapeutic options which aim to overcome the existing barriers to treatment.

It is the PCDE's ambition to increase the number of attendees in the coming years and to extend its scope to other conferences, such as EASD and WONCA-Europe, so that it can accomplish its important mission: to focus on the undeniable role of primary care in addressing the growing burden of (type 2) diabetes.

As a primary health care professional involved in the management of people living with diabetes, this conference is an educational programme you cannot miss.

We hope you will enjoy it.

On behalf of the scientific and organising committees,

Johan Wens
Chair of PCDE

Committees

Organizing Committee

Chair:
Johan Wens

Members:
Pinar Topsever
Xavier Cos

Host Organizing Committee

Chair:
Xavier Cos

Scientific Committee

Chair:
Pinar Topsever

Members:
Johan Wens
Xavier Cos
Kamlesh Khunti
Ekrem Orbay
Line Kleinebreil
Domingo Orozco
Javier García Soidán
Manel Mata
Richard Hobbs
Arzu Uzuner
Martin Hadley-Brown

Chairs and speakers

Kristien van Acker	*Diabetic Foot Study Group of EASD (DFSG)*
Carlos Brotons	*Spanish Society of Family and Community Medicine (semFYC)*
Antonio Ceriello	*Cardiovascular Diseases Study Group of EASD (EASD CVD)*
Xavier Cos	*Primary Care Diabetes Europe (PCDE)*
Anne-Marie Felton	*Foundation of European Nurses in Diabetes (FEDN)*
Javier García Soidán	*Spanish Society of Family and Community Medicine (semFYC)*
Martin Hadley-Brown	*Primary Care Diabetes Europe (PCDE) / Primary Care Diabetes Society (PCDS)*
Richard Hobbs	*European Primary Care Cardiovascular Society (EPCCS)*
Paul Janssen	*Dutch College of General Practitioners (NHG)*
Kamlesh Khunti	*Primary Care Diabetes Europe (PCDE) / Primary Care Diabetes Society (PCDS)*
Line Kleinebreil	*Diabetes Education Study Group of EASD (DESG)*
Elise Kuipers	*Dutch Diabetes Federation (NDF) / Dutch Diabetes and Nutrition Organization (DNO)*
Matthias Lenz	*European Primary Care Cardiovascular Society (EPCCS)*
Manel Mata	*Primary Health Care Diabetes Study Group (GedapS)*
Neil Munro	*Primary Care Diabetes Society (PCDS)*
Ekrem Orbay	*Turkish Family Medicine Foundation (TAHEV)*
Domingo Orozco	*Spanish Society of Family and Community Medicine (semFYC)*
Pinar Topsever	*Primary Care Diabetes Europe (PCDE)*
Jaakko Tuomilehto	*Cardiovascular Diseases Study Group of EASD (EASD CVD)*
Arzu Uzuner	*Turkish Association of Family Physicians (TAHUD)*
Johan Wens	*Primary Care Diabetes Europe (PCDE)*
Tom Yates	*Primary Care Diabetes Society (PCDS)*

About PCDE

Primary Care Diabetes Europe (PCDE) exists to provide a focal point for primary care clinicians and their patients. Its purpose is to promote high standards of care for people living with diabetes throughout Europe. Emphasis is placed on incorporating evidence-based medicine into daily practice as well as promoting diabetes education and research in primary care.

PCDE was founded according to the objectives of the Saint Vincent Declaration (1989). A group of interested primary care physicians met in Athens (1995) and established a first meeting in Lisbon (1996), formalising accepted objectives, a constitution, an action plan and a chosen committee. From 2005 onwards, the association was recognised officially by Belgian law as an international non-profit organisation.

Individual membership is open to all professionals working in Primary Diabetes Care. Our current membership stands at about 4,200 members. Membership of the General Assembly is open to all professional members of PCDE by candidacy. As many countries as possible are encouraged to be represented in the General Assembly. The total number of executive committee members is limited to 12. The General Assembly votes for their representation on the Executive Committee.

Through successful activities and a leadership position in the field, PCDE has an interface role between primary and secondary diabetes care organisations regarding research, education, clinical practice and health care governance, aiming for a better quality of diabetes care in the community.

As such, PCDE has the unique opportunity of being the official **Diabetes Special Interest Group of WONCA-Europe**. PCDE also promoted the creation of a Primary Care Research Group with in European Association for the Study of Diabetes (EASD) which was accepted in 2007. These efforts resulted in PCDE's participation in different European research projects such as SWEET, CALLIOPE, IMAGE, DIAMAP, TRANSFORM and others...

To communicate scientific research results, PCDE launched its own research journal *Primary Care Diabetes* which is published by Elsevier and with Jaakko Tuomiletho as editor-in-chief. Only five years after publication of the first issue, the journal is now indexed in Pubmed, PsycInfo and Skopus. A science citation index will be announced in 2013.

In addition to its research activities, PCDE also impacts on European policy level in its **consultancy position** in different national and international organisations. The European Coalition for Diabetes (ECD) has been established since 2010, together with the Federation of European Nurses in Diabetes (FEND), the International Diabetes Federation (IDF) and EURADIA, the coordinating organisation of the EASD. The ECD now is in constant communication with different members of the European Parliament and various partners in the European Commission in charge of all aspects of health care governance and research.

More information is available on our websites

- PCDE Website: **http://www.pcdeurope.org**
- PCDE Conference site: **http://pcdeurope2012.semfyccongresos.com**
- Primary Care Diabetes Journal: **http://www.primary-care-diabetes.com**
- The online manuscript submission site for the journal is live at: **http://ees.elsevier.com/pcd/**
- (NEW) Knowledge Resource Center: **http://www.pcd-glucose-homeostasis.com/**

CME accreditation

The **XII International Primary Care Diabetes Europe Conference** was granted **11** European CME credits (ECMEC) by the European Accreditation Council for Continuing Medical Education (EACCME).

European accreditation

European Accreditation is granted by the EACCME in order to allow participants who attend the above-mentioned activity to validate their credits in their own country.

Accreditation statement

The *XII International Primary Care Diabetes Europe Conference* is accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS), www.uems.net.

The *XII International Primary Care Diabetes Europe Conference* is designated for a maximum of 11 hours of European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

EACCME credits

Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity. The EACCME credit system is based on one ECMEC per hour with a maximum of three ECMECs for half a day and six ECMECs for a full-day event.

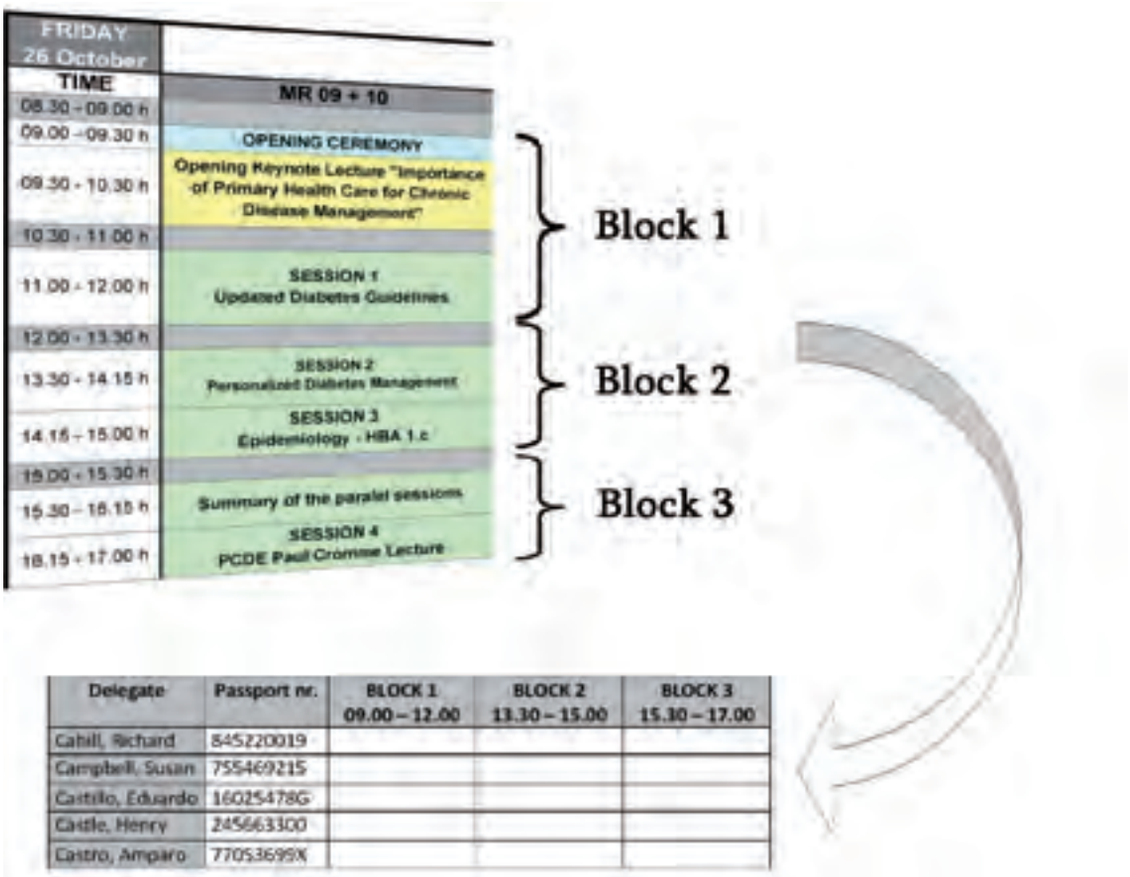
Spanish accreditation

The *XII International Primary Care Diabetes Europe Conference* is accredited by the Catalan Board for the Ongoing Training of Healthcare Professions (CCFCPS) with 0,9 credits. A minimum of 80% of attendance to the whole conference will be required to obtain the CFC credits and the certificate.

Process to obtain EACCME accreditation

1. Sign at the entrance of each session
2. Visit the Conference website
3. Fill in the on-line assessment form

When do I have to sign?



FRIDAY 26 October	
TIME	MR 09 + 10
08.30 - 09.00 h	
09.00 - 09.30 h	OPENING CEREMONY
09.30 - 10.30 h	Opening Keynote Lecture "Importance of Primary Health Care for Chronic Disease Management"
10.30 - 11.00 h	
11.00 - 12.00 h	SESSION 1 Updated Diabetes Guidelines
12.00 - 13.30 h	
13.30 - 14.15 h	SESSION 2 Personalized Diabetes Management
14.15 - 15.00 h	SESSION 3 Epidemiology - HBA 1.c
15.00 - 15.30 h	
15.30 - 16.15 h	Summary of the parallel sessions
16.15 - 17.00 h	SESSION 4 PCDE Paul Cromme Lecture

Block 1

Block 2

Block 3

Delegate	Passport nr.	BLOCK 1 09.00 – 12.00	BLOCK 2 13.30 – 15.00	BLOCK 3 15.30 – 17.00
Cahill, Richard	845220019			
Campbell, Susan	755469215			
Castillo, Eduardo	16025478G			
Castle, Henry	245663300			
Castro, Amparo	77053695X			

Fill in the form at:

http://pcdeurope2012.semfyccongresos.com/accreditation

Daily planner

THURSDAY, 25 October

BARCELÓ SANTS HOTEL	
TIME	**MR 09 + 10**
13.00 - 18.00	**Pre-conference satellite symposium** New and emerging perspectives on the treatment paradigm for T2D

FRIDAY, 26 October

BARCELÓ SANTS HOTEL			
TIME	**MR 09 + 10**	**MR 07 + 08**	**MR 05 + 06**
08.00 - 09.00	**REGISTRATION**		
09.00 - 09.30	**OPENING CEREMONY**		
09.30 - 10.30	**Opening keynote lecture** Importance of primary health care for chronic disease management		
10.30 - 11.00	**COFFEE BREAK**		
11.00 - 12.00	**Session 1** Guidelines in the management of diabetes in primary care		
12.00 - 13.30	**LUNCH and POSTER SESSION**		
13.30 - 14.15	**Session 2** Personalized diabetes management	**Workshop 1** Diabetic foot prevention, screening, diagnosis and care	**Workshop 2** Medical nutrition therapy
14.15 - 15.00	**Session 3** HbA1c in diagnosis and different types of diabetes (DE-Plan)		
15.00 - 16.00	**COFFEE BREAK**		
16.00 - 16.45	**Session 4** 4th Paul Cromme Lecture: The journey of advocacy in improving the lives of people with diabetes		
17.00 - 19.00		**Janssen satellite symposium** The Kidney – A new therapeutic target in T2D management	**Lilly satellite symposium** One size doesn't fit all. An individualised approach to treating patients with T2D

SATURDAY, 27 October

BARCELÓ SANTS HOTEL	
TIME	**MR 09 + 10**
09.00 - 09.45	**Session 5** Rising star lecture: Preventing diabetes in primary care; translating evidence into practice
09.45 - 10.30	**Orals on posters and poster award ceremony**
10.30 - 11.00	**COFFEE BREAK**
11.00 - 11.45	**Session 6** Cardiometabolic clinical challenges - Cardiovascular risk engines
11.45 - 12.30	**Session 7** Cardiovascular risk assessment and risk communication with diabetes patients
12.30 - 13.30	**LUNCH**
13.30 - 14.15	**Session 8** Individualizing glycaemic targets in T2D: implications of recent clinical trials
14.30 - 15.15	**Session 9** Novel therapies: GLP DPP SGLT 2 blockers
15.30 - 15.45	**CLOSING CEREMONY**

Conference topics

- Screening and diagnosis of diabetes and its complications
- Stratifying and communicating metabolic risk
- Patient centered diabetes care
- Shared care model for diabetes in PHC
- Update on diabetes guidelines
- Initiating insuline therapy in PHC
- Novel therapies
- Diabetic foot
- Medical nutrition therapy

Scientific programme

FRIDAY, 26 OCTOBER

08.00 - 09.00 **REGISTRATION**

09.00 - 09.30 **OPENING CEREMONY**
Welcome address by:
Johan Wens (Chairman PCDE)
Xavier Cos (Vice Chairman PCDE)

09.30 - 10.30 **OPENING KEYNOTE LECTURE. Importance of primary health care for chronic disease management** (p. 16)
Chair: *Johan Wens*
Speaker: *Carlos Brotons*

10.30 - 11.00 ***Coffee break***

11.00 - 12.00 **SESSION 1. Guidelines in the management of diabetes in primary care** (p. 17)
Chairs: *Pinar Topsever and Xavier Cos*
Speakers: *Martin Hadley-Brown and Paul Janssen*

12.00 - 13.30 ***Lunch break***

POSTER SESSION
Chairs poster walk: *Martin Hadley-Brown, Domingo Orozco, Arzu Uzuner, Ekrem Orbay, Richard Hobbs, Xavier Cos, Johan Wens and Pinar Topsever*

13.30 - 14.15 **SESSION 2. Personalized diabetes management – What is in it for patients, caregivers and healthcare systems?** (p. 18)
Chair: *Ekrem Orbay*
Speaker: *Antonio Ceriello*

13.30 - 15.00 **WORKSHOP 1. Diabetic foot-prevention, screening, diagnosis and care** (p. 20)
Speaker: *Kristien van Acker*

WORKSHOP 2. Medical nutrition therapy (p. 21)
Speaker: *Elise Kuipers*

14.15 - 15.00 **SESSION 3. HbA1c in diagnosis and different types of diabetes – Diabetes Prevention Programme (DE-Plan)** (p. 18)
Chair: *Kamlesh Khunti*
Speaker: *Jaakko Tuomilehto*

15.00 - 16.00 ***Coffee break***

16.00 - 16.45 **SESSION 4. 4th Paul Cromme Lecture: The journey of advocacy in improving the lives of people with diabetes** (p. 19)
Chair: *Johan Wens*
Speaker: *Anne-Marie Felton*

SATURDAY, 27 OCTOBER

09.00 - 09.45 **SESSION 5. Rising Star Lecture: Preventing diabetes in primary care; translating evidence into practice** (p. 21)
Chair: *Pinar Topsever*
Speaker: *Tom Yates*

09.45 - 10.30 **ORALS ON POSTERS AND POSTER AWARD CEREMONY**
Chair: *Xavier Cos*

10.30 - 11.00 ***Coffee break***

11.00 - 11.45 **SESSION 6. Cardiometabolic clinical challenges - Cardiovascular risk engines** (p. 22)
Chair: *Javier García Soidán*
Speaker: *Richard Hobbs*

11.45 - 12.30 **SESSION 7. Cardiovascular risk assessment and risk communication with diabetes patients** (p. 23)
Chair: *Arzu Uzuner*
Speaker: *Matthias Lenz*

12.30 - 13.30 ***Lunch break***

13.30 - 14.15 **SESSION 8. Individualizing glycaemic targets in type 2 diabetes mellitus: implications of recent clinical trials** (p. 23)
Chair: *Line Kleinebreil*
Speaker: *Manel Mata*

14.30- 15.15 **SESSION 9. Novel therapies: GLP DPP SGLT 2 blockers** (p. 24)
Chair: *Xavier Cos*
Speaker: *Neil Munro*

15.30 - 15.45 **CLOSING CEREMONY**

Satellite symposiums

THURSDAY, 25 OCTOBER

13.00 - 18.00 **PRE-CONFERENCE SATELLITE SYMPOSIUM. New and emerging perspectives on the treatment paradigm for type 2 diabetes** (p. 25)

FRIDAY, 26 OCTOBER

17.00 - 19.00 **JANSSEN SATELLITE SYMPOSIUM. The Kidney – A new therapeutic target in type 2 diabetes management** (p. 26)

LILLY SATELLITE SYMPOSIUM. One size doesn't fit all. An individualised approach to treating patients with type 2 diabetes (p. 26)

Lecture summaries

FRIDAY, 26 OCTOBER

■ OPENING KEYNOTE LECTURE

Importance of primary health care in chronic disease management

Time 09.30 - 10.30
Room MR 09+10

Speaker

Dr **Carlos Brotons** trained as a family physician in Barcelona, Spain. After working as a clinician and teaching assistant for family medicine residents, he spent two years at the School of Public Healthat the University of Texas (Houston-USA) on a Master's Programme in Public Health, and six months as a visiting professor on the advanced epidemiology course and at the Coordinating Centre for Clinical Trials. After that period, he obtained his doctoral degree (PhD) from the Autonomous University of Barcelona, Spain. He currently works part-time as a clinician and is also the head of the Research Unit of the Sardenya Primary Health Care Centre-Biomedical Research Institute Sant Pau, in Barcelona, Spain. He was the chairman of EUROPREV (European Network for Prevention and Health Promotion in Family Medicine/General Practice, Network of the European Society of General Practice/Family Medicine-www.europrev.org) until October 2010 and also has been a Member of the Joint European Societies Cardiovascular Prevention Committee and the Third Task Force on CVD Prevention, representing the European Society of General Practice/Family Medicine. Dr Brotons is also a member of the Board of the European Primary Care Cardiovascular Society and the Council on Cardiovascular Primary Care of the European Society of Cardiology. His research interests are on cardiovascular disease prevention in primary care, and he has been involved in different research projects on this topic in Spain and abroad.

Summary

The management of chronic disease will be one of the most significant health challenges of the twenty-first century. The number of people with chronic conditions is rising dramatically and will continue to do so. Chronic diseases currently contribute to more than 50% of the global disease burden due to death, disability and diminished quality of life, and this figure is projected to continue to rise. Evidence indicates that people who participate in chronic disease management programmes have a better quality of life, experience fewer complications and reduce their overall use of health care resources.

Chronic disease management is a pro-active, population-based approach that addresses chronic diseases early in the disease cycle to prevent disease progression and reduce potential health complications.

Primary care providers have a key role in achieving successful chronic disease management programmes. These programmes share the following characteristics: they are evidence-based, use multiple strategies and interventions, are patient-centred, empower individuals to increase control over and improve their health, promote collaboration among health providers (primary and secondary care), organizations, individuals, families and community groups, and include an evaluation component to ensure that programmes are achieving their objectives. This approach reduces the subsequent need for acute interventions in the future and allows people to maintain their independence and remain healthy for as long as possible.

Diabetes is one of the chronic conditions with demands on health care systems, primary health care providers, patients and families.

Risk and complications associated with diabetes can be delayed, if not prevented entirely. However, this requires primary health care that is proactive and organized around the concepts of planned care and prevention. Comprehensive and proactive health care approaches are especially important for resource-limited health care settings, in which it is essential to maximize health care efficiency.

■ SESSION 1

Guidelines in the management of diabetes in primary care

Time 11.00 - 12.00
Room MR 09+10

Speakers

After qualifying at St. Thomas' Hospital Medical School, London, in 1983, **Martin Hadley-Brown** trained in general medicine in and around London before moving from the Renal Unit at St. Thomas's to Dorset to complete GP training. He moved from there to take up a partnership in Thetford, Norfolk in 1989 and became senior partner in the town's eight-doctor School Lane Practice in 1998. His main focus is on providing and developing high quality primary care medical services here in Thetford. In addition, his major clinical interest in diabetes and cardiovascular diseases led to his membership of the Professional Advisory Council of Diabetes UK from 2001 to 2006 and to his being a founder member of the Primary Care Diabetes Society in 2003. He was elected chairman of the Society from 2005, and was a member of the Guidelines Development Groups for the NICE (National Institute for Health and Clinical Excellence for England and Wales) Type 2 Diabetes Guidelines published in May 2008 and 2009. He continues to work with NICE in an advisory capacity. He is also an enthusiastic medical teacher, being a GP trainer and a clinical teacher at the University of Cambridge Clinical School. In 2010 he was appointed clinical tutor and senior member at Hughes Hall, Cambridge, at which time he reduced his clinical commitment at School Lane to a ¾ time share.

Paul Janssen was born on February 8th 1956 in Doesburg, the Netherlands. He works as a general practitioner. He was a practising physician, from 1994 to 2003, and has been a staff member at the Dutch College of General Practitioners. From 2002 to 2008, he was attached to the Julius Centre for Health Sciences and Primary Care at the University Medical Centre Utrecht, the Netherlands, where he completed his thesis ("Screening for type 2 diabetes in the Netherlands"). He worked on the ADDITION study (Anglo-Danish-Dutch Study of Intensive Treatment in People with Screen-Detected Diabetes in Primary Care), a multicentre randomised controlled trial consisting of a screening study and a subsequent intervention trial with a follow-up of five years. In 2007 he was appointed as staff member at the Department of Guideline Development and Research Policy of the Dutch College of General Practitioners.

Summary

Over the past 20 years there has been a fundamental shift in the responsibility for the medical care of people with type 2 diabetes. Primary care clinicians have assumed roles and skills previously associated with specialist teams. At the same time, the prevalence of the disease has increased markedly worldwide. The setting up of primary care diabetes societies in many nations seeks to address the need for education and support amongst all the professionals involved. Alongside the societies, a number of national bodies have developed guidelines in varying detail, which seek to set standards for the care to be expected.

Our two speakers have both been involved in national guideline development. Dr Martin Hadley-Brown was a member of the NICE Type 2 Diabetes Guideline Development Group for type 2 diabetes and continues to contribute to that organisation's work. Dr Paul Janssen is a staff member at the Department of Guideline Development and Research Policy of the Dutch College of General Practitioners. Together they will look at not only their own guidelines but those of the American Diabetes Association, the European Association for the Study of Diabetes, and the Scottish Intercollegiate Guidelines Network. They will review the differences between them as well as common themes and recommendations, and provide an insight into how such guidelines are developed and how they can best be used.

■ SESSION 2

Personalized diabetes management – What is in it for patients, caregivers and healthcare systems?

Time 13.30 - 14.15
Room MR 09+10

Speaker

Professor **Antonio Ceriello**, at the August Pi i Sunyer Biomedical Research Institute (IDIBAPS), has published widely in the area of diabetes with over 200 original papers and several book chapters. He has been a consultant at the National Institutes of Health, U.S.A. on the 2003-2005 research programme related to cardiovascular disease and type 1 diabetes and a member of the American Heart Association Writing Committee of the guidelines on *Acute Hyperglycaemia and Acute Coronary Syndromes*. He recently chaired the International Diabetes Federation (IDF) Committee for the Development of the *Guideline for Management of Postmeal Glucose* and is currently the president of the European Association for the Study of Diabetes (EASD) Study Group on Diabetes and Cardiovascular Diseases and member of the Board of the IDF Europe. He is also the associate editor of *Diabetes Care* and *Diabetic Medicine*. Prof. Ceriello is the winner of the EASD 2004 Castelli Pedroli Prize.

August Pi i Sunyer Biomedical Research Institute (IDIBAPS) and Centro de Investigación Biomédica en Red de Diabetes y Enfermedades Metabólicas Asociadas (CIBERDEM), Hospital Clínic Barcelona, Barcelona, Spain.

Summary

A strong correlation exists between improved blood glucose control, obtained during the earliest stages of diabetes, and the prevention of complications. However, tight glycometabolic control does not always translate into an advantage for every patient. Since the characteristics of individual patients play an important role in diabetes care, there is a need to develop personalised action plans. An expert opinion will be presented, offering tailored therapeutic algorithms for some of the commonest type 2 diabetes phenotypes, taking into consideration age, BMI, the presence of micro- and macro-vascular complications, hypoglycaemia risk, and the co-existence of chronic renal failure. Particular emphasis is placed on exploiting information supplied through the rational use of home-based blood glucose monitoring as a tool for optimising diabetes management, according to the prevalence of fasting/pre-prandial or post-prandial hyperglycaemia.

■ SESSION 3

HbA1c in diagnosis and different types of diabetes – Diabetes Prevention Programme (DE-Plan)

Time 14.15 - 15.00
Room MR 09+10

Speaker

Jaakko Tuomilehto is emeritus professor of public health at the University of Helsinki (Finland) and currently working as professor of vascular prevention at the Danube-University Krems in Krems, Austria. He is associated with the Diabetes Prevention Unit of the Finnish National Institute for Heath and Welfare and the Instituto de Investigación Sanitaria del Hospital Universitario de La PAZ (IdiPAZ), the Cooperative Cardiovascular Disease Research Network (RECAVA) Group for Clinical Epidemiology and Prevention of Cardio-Metabolic Diseases in Madrid, Spain. His research interests include the epidemiology and prevention of non-communicable diseases such as diabetes, cardiovascular disease and dementia. He has contributed to many landmark studies, including the 2001 Finnish Diabetes Prevention Study (DPS) that was the first to demonstrate a remarkable 58% reduction in the incidence of diabetes with lifestyle intervention. These findings were replicated afterwards by several other trials, proving the concept. He is the principal investigator of the WHO DIAMOND Project mapping the incidence of childhood type 1 diabetes worldwide. He has also established major international collaborative studies on diabetes epidemiology, the DECODE/DECODA (Diabetes Epidemiology-Collaborative Analysis of Diagnostic Criteria in Europe/Asia) studies that have formed the basis of the glucose criteria for the diagnosis of diabetes. He has been invited to be a member of several American Diabetes Association (ADA) and World Health Organisation (WHO) committees on the definition and diagnostic criteria of diabetes. He is actively involved in several other committees, scientific organisations and advisory boards nationally and internationally. He is currently the editor-in-chief of *Primary Care Diabetes*. He has received many prestigious scientific awards and contributed to over 1200 scientific peer-reviewed publications, and is one of the most cited authors in the field of clinical medicine and diabetes.

Summary

In 2008, an International Expert Committee proposed that A1C should be included among diagnostic tools for type 2 diabetes (T2D) and, should even be preferred in T2D diagnosis in adults. The cut-point of 6.5% was chosen to be diagnostic after confirming it in a repeat test. The World Health Organisation (WHO) invited a consultation group to discuss this proposal and to review the evidence for using A1C as a diagnostic tool in 2009. At the beginning of 2011, the abbreviated report of the WHO consultation came out and is available at: http://www.who.int/diabetes/en/. While the WHO consultation agrees that A1C > 6.5% can be taken as diagnostic for T2D, it critically discusses the advantages and disadvantages of the use of A1C for the diagnosis of T2D. It also makes a strong statement that the value of less than 6.5% does not exclude diabetes diagnosed using glucose tests. In addition, following the current WHO practice, the evaluation of evidence followed the formal GRADE methodology with the statements: 1) Quality of evidence assessed by GRADE: moderate; and 2) Strength of recommendation based on GRADE criteria: conditional.

This WHO grading corresponds to the increasing body of literature that illustrates many problems when A1C and glucose testing are compared for the diagnosis of T2D. While there is a good agreement about the use of diabetes risk scores in primary screening for undiagnosed or future T2D, many of us think that advocating A1C so strongly as the primary diagnostic tool is premature, and may not help T2D patients at large. Clearly, A1C is very insensitive in finding undiagnosed cases of T2D. The recent study by Costa et al. showed that among people who had high estimated T2D risk according to the risk score, almost 90% of those who were considered diabetic in an oral glucose tolerance test would have been missed if A1C >6.5% had been used as the preferred diagnostic test. Whether this 6.5% cut-point is ideal, can be questioned, and it seems that there is a lot of variability in best sensitivity and specificity between different studies. It is recommended that simple risk scores are used for primary screening for T2D, and lifestyle intervention should be offered for high risk people.

The multiple T2D prevention studies that have provided a solid evidence-base that the progression to T2D can be prevented very effectively by lifestyle intervention were all based on people with impaired glucose tolerance (IGT). There are no data to show whether and to what extent the progression from “borderline elevated” A1C (e.g. in the range of 5.7-6.4%) can be stopped. Without such data, evidence-based recommendations regarding this range of A1C cannot be made, and limited health care resources should not be used for such groups of individuals.

There are multiple issues that modify the levels of A1C, including age, genetic, ethnic, haematologic factors, pregnancy, infections, etc. In addition, measurement issues are always present, too, despite the claims that A1C is fully standardised. These are important points to keep in mind when evaluating the uses of A1C.

■ SESSION 4

4th Paul Cromme Lecture: The journey of advocacy in improving the lives of people with diabetes

Time 16.00 - 16.45
Room MR 09+10

Speaker

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 cofounder of the Federation of European Nurses in Diabetes (FEND) and a vice-president of the International Diabetes Federation (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, chair of the IDF Global Advocacy Task Force, a member of the Alliance for European Diabetes Research (EURADIA), executive committee member of Primary Care Diabetes Europe (PCDE) and chair of the European Coalition for Diabetes (ECD) 2012. She has been appointed chair of the Organising Committee for IDF Congress 2013 Melbourne.

Summary

The diabetes community in Europe, patient organisations and professional societies have and continue to be superb exemplars of advocates in the cause of diabetes. Historically, in the latter part of 20th century, the St Vincent Declaration set the tone of geo-political advocacy for diabetes. European NGOs have embraced and professionalized the role of advocacy and its structures. Fundamentally, it engages not only people with diabetes but also the general public and political institutions. This presentation will describe the European advocacy journey for diabetes and will seek to identify future challenges and solutions.

■ WORKSHOP 1

Diabetic foot-prevention, screening, diagnosis and care

Time 13.30 - 15.00
Room MR 07+08

Speaker

Kristien van Acker is a diabetologist at the Heilige Familie Hospital, Rumst, Belgium, and the Centre de Santé des Fagnes, Chimay, Belgium. She is a consultant at the Institute of Tropical Medicine, Antwerp, Belgium, and is an active faculty member of the Pisa International Diabetic Foot Courses. Her current research interests include the prevalence and treatment of painful neuropathy, its interdisciplinary management, and the implementation of treatment guidelines. Dr Van Acker obtained her PhD on "The Diabetic Foot, a Challenge for Policy Makers and Health Care Professionals". She started the first multidisciplinary diabetic foot clinic in Belgium, and has extensive experience in the field of diabetic foot treatment in developing countries. She has worked as a partner in the International Working Group on the Diabetic Foot (IWGDF), and is a contributor to the IWGDF consensus documents. She is involved with the International Diabetes Federation (IDF) as vice-chair of the Diabetic Foot Programme and as a board member of the IDF Step-by-Step Development and Research Group (SSDRG). She is co-authored the IDF publication, *Diabetes and Foot Care: Time to Act*. She is also a board member of the Diabetic Foot Study Group (DFSG) of the European Association for the Study of Diabetes (EASD).

Summary

There are over 250 million people living with diabetes worldwide. Without significant action to prevent the condition, the number of affected people is predicted to reach 380 million by 2025. Because of the rapid increase in diabetes prevalence – with the number of affected people predicted to reach 380 million by 2025 – the number of diabetes complications is rising equally quickly. Amputation is one of the most feared of these complications. People with diabetes are at risk of nerve damage and problems with blood supply to their feet. Nerve damage results in a reduced ability to feel pain and, as a consequence, injuries often go unnoticed. Moreover, poor blood supply can slow down the process of wound healing. These factors can lead to ulceration. Infected foot ulcers can ultimately result in amputation.

Amputations and foot problems in general are among the most costly complications of diabetes. In developed countries, treating diabetic foot problems accounts for an estimated 15% of total healthcare resources. In developing countries, it has been estimated that diabetic foot problems may consume as much as 40% of available healthcare resources for diabetes. This means that programmes aimed at early intervention and prevention are of paramount importance for people living with diabetes.

For this reason it is of utmost importance to have good screeningand treatment programmes.
During the workshop sessions we will deal with the following items that also cover the pre- and post ulcer phase:

- screening for the at-risk foot and learning about the risk profiles
- treatment of the foot ulcer where the expression "Time is tissue" will be central to the discussion
- referral and contra-referral issues
- prevention in the pre- and post-ulcer phase

Clinical cases will be presented for a discussion on this topic.
Diabetes medical nutrition therapy
Sugar is not forbidden, but what about carbohydrates?

■ WORKSHOP 2

Medical nutrition therapy

Time 13.30 - 15.00
Room MR 05+06

Speaker

Since 1990, **Elise Kuipers** has been a registered dietitian, specializing in diabetes.
After working at the Free University Hospital and the primary care Diabetes Centre in Amsterdam in 1998 she opened her own dietitian practice for primary and secondary nutrition diabetes care in Amsterdam. Since 2005, Elise Kuipers has also taught on the post-bachelor training course Diabetes and Nutrition and has been a member of the advisory committee on the bachelor degree Nutrition and Dietetics, both at the HAN University in Nijmegen. Elise Kuipers is a member of the Dutch Diabetes and Nutrition Organization and the Dutch Diabetes Federation. She plays an active role in the Dutch Nutrition Diabetes Guidelines, the standard for primary diabetes care and diabetes education programmes.

Summary

Knowledge about the fat, protein and carbohydrate content offood is basic, essential information for a patient with diabetes mellitus. Although weight loss is a very important goal in diabetes nutrition therapy to increase insulin sensitivity and reduce cardiovascular risk. It is not the only purpose of dietary treatment. Unbalanced carbohydrate intake and inadequate meal planning can easily lead to ineffective diabetes management. Literature tells us that "counting carbs" leads to a decrease in HbA1c. Medical nutrition therapy provided by a registered dietitian (RD), should therefore be complementary to medical interventions in diabetes treatment. The RD can evaluate the patient's macronutrient needs versus intake as well as their carbohydrate intake and meal planning in relation to anti-diabetic medication. Teaching patients to plan meals and their carbohydrate intake, by using a carbohydrate exchange method, helps them to reach their self-management goals. In this teaching process the RD makes use of problem-solving skills, such as motivational interviewing, to overcome patient barriers. This workshop will provide you with some practical methods to educate your diabetes patients in applying carbohydrate counting and meal planning in relation to different kinds of anti-diabetic agents and different (European) food habits.

SATURDAY, 27 OCTOBER

■ SESSION 5

Rising Star Lecture: Preventing diabetes in primary care; translating evidence into practice

Time 09.00 - 09.45
Room MR 09+10

Speaker

Dr **Tom Yates** is a senior lecturer in physical activity, sedentary behaviour and health and a key researcher within the Leicester Diabetes Centre, University of Leicester, UK. Having completed a PhD with Loughborough University in 2008 looking at physical activity in the prevention of type 2 diabetes, Dr Yates has continued to have a strong research focus elucidating the role of physical activity and sedentary behaviour in the prevention and treatment of chronic disease. He has developed a diverse portfolio ranging from experimental clinical research to translational research within routine primary care. A core theme running through this work has been developing, testing and implementing simple lifestyle strategies, such as increased daily walking activity, and linking these to national and international primary care-based chronic disease prevention strategies. This work has led to improved routine clinical care through the implementation of the Walking Away from Type 2 Diabetes programme, the only national diabetes prevention programme available to primary care organisations and commissioning groups.

Summary

The talk will be based on describing the process of developing, evaluating and implementing a diabetes prevention programme in primary care. The talk will combine the science of health behaviour in the prevention of type 2 diabetes, behaviour change strategies, and key challenging around translating theory into practice within primary care.

■ SESSION 6

Cardiometabolic clinical challenges - Cardiovascular risk engines

Time 11.00 - 11.45
Room MR 09+10

Speaker

Richard Hobbs is currently professor and head of Primary Care Health Sciences at the University of Oxford, UK. He is the national director of the National Institute for Health Research (NIHR) English School for Primary Care Research (2009-) and was national director and chair of the Quality and Outcomes (QOF) Review Panel from 2005-09. He sits on several national and international scientific and research funding boards, including the Council of the British Heart Foundation (BHF). He currently chairs the Council for Cardiovascular Primary Care of the European Society of Cardiology (ESC); the Prevention and Care Board, BHF; and the European Primary Care Cardiovascular Society (EPCCS). He previously served as member and chair of the UK EPCCS and the British Society for Heart Failure (BSHF).

Professor Hobbs' research interests focus on cardiovascular epidemiology and clinical trials, especially relating to vascular and stroke risk, and heart failure. Overall his publications include 28 book chapters, 12 edited books and over 320 original papers in peer-reviewed journals such as the *Lancet*, *Annals of Internal Medicine*, *BMJ*, *Atherosclerosis*, *EHJ* and *Stroke*. His research has impacted on international health policies and clinical guidelines. Within the NHS, he has consulted on National Service Frameworks for Coronary Heart Disease (NSF CHD), atrial fibrillation, and heart failure and several National Institute of Clinical Excellence (NICE) and ESC guideline reviews.He has provided clinical care in inner-city general practice for 30 years.

Summary

Cardiovascular disease (CVD) remains the leading cause of global morbidity and mortality. Abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, psychosocial factors, low consumption of fruit and vegetables, no alcohol intake and irregular physical exercise are associated with over 90% of the risk of an acute myocardial infarction (MI) across age groups and in all regions of the world.

Since CVD is a multi-factorial syndrome, health policy directs clinicians to identify those at high risk, as well as provide preventative and treatment goals, especially around reducing the impact of the three main risk factors: treating hypertension in 17 randomized trials of antihypertensive treatment, showed a net BP reduction of 10-12 mmHg systolic BP, and 5-6 mmHg diastolic reduced stroke incidence by 38% and CHD by 16%;and a meta-analysis of 14 statin trials showed that every 40 mg/dL (1 mmol/L) decrease in LDL-C led to a 21% decrease in CHD risk after one year of treatment. These data are incorporated into clinical guidance such as the US National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) and the Joint European Societies Guidelines, which both recognise the importance of dyslipidaemia, hypertension and smoking as the main risk factors for CVD.

A key issue is how best to identify those individuals at highest risk of CVD who could most benefit from CVD risk factor intervention? Guidelines for the prevention of CVD identify individuals with a CVD-equivalent (e.g. other atherosclerotic disease or diabetes) for automatic treatment. Whether diabetes is a full "coronary risk equivalent" is disputed. Those with multiple risk factors need a risk estimation using a validated risk score and those with a total ten-year SCORE fatal CV risk of ≥5% (or >20% Framingham total CV events risk), and individuals with a single markedly increased risk factor, are the priorities for intervention within the primary prevention population.

References

1. WHO. *World Health Report 2002*. Geneva:World Health Organization, 2002.
2. Yusuf, S, Hawken, S, et al. "Effect of modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study". *Lancet* 2004; 364: 937-52.
3. MacMahon S, Peto R, Cutler J, Collins R, Sorlie P, Neaton J, et al. "Blood pressure, stroke, and coronary heart disease. Part 1, prolonged differences in blood pressure: prospective observational studies corrected for the regression dilution bias". *Lancet* 1990; 335: 765-774.
4. "Cholesterol Treatment Trialists 2". *Lancet* 2010; 376: 1670–1681.
5. De Backer G, Ambrosioni E, Borch-Johnsen K, Brotons C, Cifkova R, Dallongeville J, et al. "European guidelines on cardiovascular disease prevention in clinical practice. Third Joint Task Force of European and Other Societies on Cardiovascular Disease Prevention in Clinical Practice". *Eur Heart J* 2003; 24(17):1601-10.

■ SESSION 7

Cardiovascular risk assessment and risk communication with diabetes patients

Time 11.45 - 12.30
Room MR 09+10

Speaker

Matthias Lenz is a senior researcher at the Unit of Health Sciences and Education, University of Hamburg, Germany. The working-group is led by Prof. Ingrid Mühlhauser, who is internationally renowned for her scientific achievements in the study of diabetes self-management and patient education.

Dr Lenz has been involved in research activities on informed patient choice, shared decision, making, and evidence-based patient information in the area of diabetes for about eight years. Among other scientific projects he currently leads a project on the development and evaluation of an evidence-based shared decision-making programme for people with type 2 diabetes who consider primary prevention of myocardial infarction. He has published a number of original papers in different areas of health sciences and given speeches at several international congresses.

Summary

People with type 2 diabetes are at increased risk of coronary heart disease (CHD). However CHD-prevention is far from optimal. An array of behavioural directives is imposed on the patients, such as quitting smoking, increasing exercise, normalizing weight, and adhering to monitoring, dietary and medication prescriptions. However, evidence on the effectiveness of many of these measures is limited and some of these measures do more harm than good. Compliance with long term treatment is poor, even with the most promising interventions, such as blood pressure control and statin use.

Lack of patient involvement in decision-making has been suggested as one reason for limited treatment success. Involving patients with diabetes in decision-making (shared decision- making) may include discussions about CHD-prevention, which could be based on valid and reliable risk assessment. Different prediction tools are available. However, evidence on their prognostic performance is still limited. Risk communication should therefore include more than just predicting the individual CHD-risk. The concept of risk and the uncertainty of prognosis should be included.

■ SESSION 8

Individualizing glycaemic targets in type 2 diabetes mellitus: implications of recent clinical trials

Time 13.30 - 14.15
Room MR 09+10

Speaker

Dr **Manel Mata** is a family and community medicine specialist and has been working as a general practitioner at La Mina Primary Health Care Centre; Barcelona (Spain) since 1984. He has been tutoring residents in the Family and Community Teaching Unit of Barcelona since 1987.

He was one of the founders of the Primary Health Care Diabetes Study Group (GEDAPS) in 1992. It is a working group within the Catalonian Primary Care Society (CAMFIC) of which Dr Mata has been chairman since 2009. The group promoted several quality-improvement evaluations of diabetes care in primary care from 1993 to 2007. Dr Mata is also a member of the Barcelona Ciutat Research Support Unit – Jordi Gol Primary Care Research Institute (IDIAP), and the Spanish Primary Care Prevention and Health Promotion Research Network (redIAPP), Barcelona, Spain.

Dr Mata has participated in several consensus documents on the management and treatment of type 2 diabetes mellitus in Spain. He was the primary care representative on several advisory boards on diabetes for the Spanish Ministry of Health from 1993 to 1996 and for the Catalonian Autonomous Government from 2000 to 2006.

Dr Mata is also one of the current editors of the Spanish GEDAPS *Clinical Guidelines for the Management of Type 2 Diabetes in Primary Care* (last edition, the 5th, 2010) and the textbook *Atención Primaria* (last edition, the 6th, 2008). He has written several articles and editorials on diabetes in national and international journals, has been the reviewer of manuscripts for a number of scientific journals, and lectures widely on type 2 diabetes-related topics, mainly in terms of its pharmacological treatment.

Summary

In recent years, several randomized controlled trials relative to the long term efficacy of the intensive pharmacological treatment of type 2 diabetes mellitus have been published: ACCORD and ADVANCE in 2008, VADT in 2009, and ADDITION in 2011. They showed that intensive control has limited benefits in the prevention of the chronic complications of diabetes and may also increase the risk of severe hypoglycaemia that has been related to an excess of mortality. The interpretation of these results and the implications for clinical practice have been debated from the very day that they were published and several meta-analyses have been published in an effort to identify which patients might benefit from intensive treatment.

Clinical trials have numerous limitations which make them difficult to carry out or limit applicability to routine clinical practice. Moreover, intensive glycaemic control is difficult to achieve in primary care and there is a need to adapt the therapeutic objectives to the needs and preferences of our patients. Recent review and opinion articles have focused on the debate between clinical inertia and overtreatment.In this review we will analyse the results of recent clinical trials and meta-analysis that either support, or do not support, the current guidelines.

■ SESSION 9

Novel therapies: GLP DPP SGLT 2 blockers

Time 14.30 - 15.15
Room MR 09+10

Speaker

Dr **Neil Munro** has been a general practitioner in a seven-doctor practice in Surrey since 1984. He is also an associate specialist in diabetes at the Chelsea and Westminster Hospital, London and has worked in specialist hospital-based diabetes clinics since 1985. In addition, he has provided diabetes services for patients in the practice for 27 years.

He was research officer for the St Vincent's Declaration Primary Care Diabetes Group in 1999 and chairman of Primary Care Diabetes Europe (PCDE) from 2000-2005. He co-founded *Primary Care Diabetes*, the first global primary care diabetes journal cited on Medline. He was a founder member of the Primary Care Diabetes Society.

He is visiting honorary associate professor of clinical sciences at Warwick University. He is visiting senior fellow at the Postgraduate Medical School, University of Surrey. His main clinical interests are in evolving therapies and the management of diabetes foot complications in primary and secondary care settings. He lectures nationally and internationally at generalist and specialist meetings. He has published extensively in diabetes and is on the editorial boards of mainstream primary care and specialist care journals.

Satellite symposiums

■ PRE-CONFERENCE SATELLITE SYMPOSIUM

New and emerging perspectives on the treatment paradigm for type 2 diabetes

Date Thursday, 25 October 2012
Time 13.00 - 18.00
Room MR 09+10

Chairs
Alan Garber
Kamlesh Khunti

Learning objectives
Upon completion of this symposium, participants will be able to:

1. Recognise the challenges and barriers that physicians and patients may experience when trying to optimise treatment for type 2 diabetes
2. Identify existing as well as new and emerging therapies, including insulin and oral agents, and how these agents may or may not meet patient needs and be incorporated into treatment algorithms
3. Demonstrate, via a patient case exercise, how to formulate an appropriate initiation or intensification treatment plan for a given patient profile

Agenda

13.00 - 13.10 Welcome and introductions
Alan Garber and Kamlesh Khunti

13.10 - 13.45 Setting the scene
Alan Garber and Kamlesh Khunti

13.45 - 14.20 What to do when metformin fails?
Janet McGill

14.20 - 14.50 How to initiate insulin?
Melanie Davies

14.50 - 15.20 BREAK

15.20 - 16.00 What new insulin formulations are available to address current treatment gaps?
Alan Garber

16.00 - 16.20 How will new non-insulin treatments impact the treatment paradigm?
John Wilding

16.20 - 16.50 What new combination therapy approaches are appropriate for my patients?
Wolfgang Schmidt

16.50 - 17.30 Case exercise and discussion

17.30 - 17.50 Panel discussion

17.50 - 18.00 Closing remarks

'New and emerging perspectives on the treatment paradigm for type 2 diabetes' is accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS), www.uems.net.

The 'New and emerging perspectives on the treatment paradigm for type 2 diabetes' is designated for a maximum of (or 'for up to') 3 hours of European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

This symposium has been developed with the support of an unrestricted educational grant from Novo Nordisk A/S.

■ JANSSEN SATELLITE SYMPOSIUM

The Kidney – A new therapeutic target in type 2 diabetes management

Date Friday, 26 October 2012
Time 17.00 - 19.00
Room MR 07+08

Agenda

17.00 - 17.05 Introduction
Kamlesh Khunti and Manuel Puig Domingo

17.05 - 17.35 Unmet therapeutic needs in the current management of people with type 2 diabetes
Kamlesh Khunti

17.35 - 18.15 SGLT-2 and the role of the kidney: a new approach
John Wilding

18.15 - 18.55 Workshop: Translating emerging insights into current clinical practice
Moderators: *Kamlesh Khunti and Manuel Puig Domingo*
Case presenters: *Kamlesh Khunti, Neil Munro and Xavier Cos*

18.55 - 19.00 Wrap-up and closing remarks

■ LILLY SATELLITE SYMPOSIUM

One size doesn't fit all. An individualised approach to treating patients with type 2 diabetes

Date Friday, 26 October 2012
Time 17.00 - 19.00
Room MR 05+06

Agenda

17.00 - 17.30 Welcome

17.30 - 17.35 Opening remarks
Johan Wens

17.35 - 18.00 Using an individualised approach to treat patients with type 2 diabetes: What are the implications of the new ADA/EASD position statement?
David Kendall

18.00 - 18.25 Type 2 diabetes in patients with renal impairment: What should we consider when first-line glucose-lowering therapy fails?
Gyorgy Jermendy

18.25 - 18.50 Alternatives for treating elderly and frail patients with type 2 diabetes failing first-line glucose-lowering therapy
Alan Sinclair

18.50 - 19.00 Closing remarks
Johan Wens

Abstracts

P01

Prevalence and characteristics of metabolically healthy obese and metabolically abnormal normal-weight Spanish individuals. The IMAP Study

Bernal-López MR[1,2], Miralles-Linares F[3], Wärnberg J[4], Mancera-Romero J[5], Baca-Osorio AJ[5], Jansen-Chaparro S[6], Villalobos A[6], Guijarro R[6], Salgado F[6], Morales-Asencio JM[7], Tinahones FJ[1,2], Gómez-Huelgas R[2,6]

[1]Biomedical Research Laboratory, Endocrinology Department, Virgen de la Victoria Hospital, Malaga, Spain; [2]CIBER Physiopathology of Obesity and Nutrition (CB06/003), Institute of Health Carlos III, Madrid, Spain; [3]Internal Medicine Department, Parque San Antonio Hospital, Malaga, Spain; [4]Preventive Medicine Department, Malaga University, Spain; [5]Health Centre Ciudad Jardin, Malaga, Spain; [6]Internal Medicine Department, Carlos Haya Hospital, Malaga, Spain; [7]Faculty of Health Sciences, Malaga University, Spain

Aims: To study the prevalence and correlates of body size phenotypes in an adult Spanish population.
Methods: We undertook a cross-sectional analysis in a random sample of 2,277 individuals (18-80 years of age). All participants provided a clinical history, physical exploration (weight, height, waist circumference and blood pressure) and blood analyses. We defined six body size phenotypes based on the BMI category (normal-weight: 18.5-24.9, overweight: 25-29.9, obesity: ≥30.0 kg/m^2) and having ≤1 (metabolically healthy) or ≥2 (metabolically abnormal) cardiometabolic abnormalities: metabolically healthy normal-weight (MHNW), metabolically abnormal normal-weight (MANW), metabolically healthy overweight (MHOW), metabolically abnormal normal-weight (MAOW), metabolically healthy obese (MHO) and metabolically abnormal obese (MAO). We considered four cardiometabolic abnormalities: systolic and/or diastolic blood pressure ≥130/85 mmHg, triglycerides ≥150 mg/dL, HDL-C <40/<50 mg/dL in men/women, and elevated glucose.
Results: The prevalence of MHO, MHOW and MANW phenotypes was 2.2%, 13.9% and 7.9%, respectively. While 9.6% of obese and 32.6% of overweight individuals were metabolically healthy, 21.3% of normal-weight subjects were metabolically abnormal. The prevalence of the metabolically abnormal phenotypes increased with aging in normal-weight and overweight, but not in obese individuals. In a multivariate regression model (adjustment for age, sex and waist circumference), age >40 year, male sex, low educational level and waist circumference remained independently associated with the MANW phenotype, while younger age, female sex and lower waist circumference remained independently associated with the metabolically healthy phenotype.
Conclusions: The prevalence of MHO in our population is low and not age-related. In contrast, a high proportion of normal-weight individuals (mainly over 40 years of age) showed cardiometabolic abnormalities.

P02

Seasonal variability of glycated haemoglobin in a diabetic population from southern Europe

Santamaría-Fernández S[1], Guijarro-Merino R[1], Navajas-Luque F[2], Bernal-López MR[3,4], San Roman-Teran CM[5], Tinahones FJ[3,4], Gómez-Huelgas R[1,4]

[1]Internal Medicine Department, Carlos Haya Regional University Hospital, Malaga, Spain; [2]Laboratory Department, La Axarquia County Hospital, Malaga, Spain; [3]Biomedical Research Laboratory, Endocrinology Department, Virgen de la Victoria Hospital, Malaga, Spain; [4]CIBER Physiopathology of Obesity and Nutrition (CB06/003) Institute of Health Carlos III, Madrid, Spain; [5]Internal Medicine Department, La Axarquia County Hospital, Malaga, Spain

Aims: To analyse the seasonal variations in A1c levels among a South-European diabetic population.
Methods: We examined all monthly-grouped A1c determinations corresponding to diabetic patients during the period 2006-2011, in a region of southeast Spain.
Results: There were 61,329 records available. The A1c mean value was 7.25 ± 1.71% (CI 95%= 7.24-7.27), with a range of 0.23%, been the greatest value in February and the lowest value in July (7.33% and 7.10%, respectively) (P<0.01).However, spectral analysis and correlation coefficients did not reach significance and did not show the series presenting a seasonal pattern.
Conclusions: In our environment, although there are some monthly fluctuations in A1C levels, they show no significant seasonal pattern. This means that the seasonal fluctuation of HbA1c does not limit decision-making in clinical practice.

P03

Health-related quality of life in patients with type 2 diabetes mellitus in Iran: a national survey

Javanbakht M[1,2], Abolhasani F[1], Mashayekhi A[1], Baradaran HR[1,2]
[1]Health Economics Department, School of Health Care Management, Tehran University of Medical Sciences, Tehran, Iran; School of Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran; [2]Endocrine Research Centre (Firoozgar), Tehran University of Medical Sciences, Tehran, Iran

Introduction: There is increasing recognition among clinicians and researchers that the impact of chronic illnesses and their treatments must be assessed in terms of their health-related quality of life (HRQOL).
Aims: To assess HRQOL of patients with type 2 diabetes mellitus (T2DM).
Methods: This is the first population-based study with a large sample size to investigate HRQoL of diabetic patients in Iran. A multi-stage cluster sampling method was used to select 3,472 patients with T2DM. We used a generic instrument (EuroQol 5D) to measure HRQOL. Logistic and Tobit regression models were used to explore determinants of responses in the EQ-5D dimensions and scores.
Results: Subjects reported problems in the pain/discomfort and anxiety/depression dimensions of EQ-5D more frequently than other dimensions (69.3%, 56.6% respectively). Our findings revealed that female patients, in age groups of 50 and over, divorced, less educated patients, those who were without work and had had diabetes for long time, as well as those who had had diabetic-related hospitalization experiences in the past year reported a significantly higher rate of "some or extreme problems". The mean EQ-5D index score was 0.70 (95% CI 0.69 – 0.71) and the mean Visual Analogue Scale score was 56.7 (95% CI 56.06 – 57.35).Our models showed that sex, age, education, diabetes duration and having had diabetes-related hospitalization experience over the past year were significant determinants of quality of life.
Conclusions: While diabetes mellitus is increasingly prevalent in the Middle East and affects the patient's quality of life to a great extent, the population remains largely unaware of the devastating effect of the disease. These findings suggest the value of measuring health status in diabetic patients by EQ-5D, because it would allow comprehensive evaluation of the patient's health condition.

P04

Improvement of screening of diabetic retinopathy in primary care with the non-mydriatic camera circuit programme

Sagarra R[1], Cabré JJ[1], Romero P[2], García-Moya F[1], Ballester R[1], Méndez I[1], Dudasu L[1]
[1]ABS Reus-1, Catalan Health Institute, Reus, Tarragona, Spain; [2]Hospital Universitari Sant Joan, Reus Tarragona, Spain

Introduction: Over the half of the patients with type 2 diabetes mellitus develop some diabetic retinopathy degree (DR) during their lives. This is one of the principal causes of preventable blindness in west. Early diagnosis of DR will allow more immediate action and the reduction of the risk of visual loss. In our primary care system, with 6,537 known diabetics, we suffered a delay in the DR screening quota of more than a year.
Aims: To reduce the time of DR diagnostic delay and the intervention or control by the ophthalmologist. To increase the family doctor's (FD) competences and the earliest handling of patients with mild or severe DR.
Material and methods: Retrospective study, during 2009-2010.
Sample size: 3,721 retinographies (847 from our centre). Once these results were evaluated by the FD, they referred the patient to the ophthalmologist from their own health care circuit in order to detect any possible pathology. The ophthalmologist could clarify any of the FD's queries or give the patient an appointment if necessary.
This circuit allows the patient a single visit if they do not show any ocular pathology.
Results: 1,631 patients were screened in 2009, being once 320 were consulted (19.6 %) and referred to ophthalmology only 123 patients (7.5 %). In 2010, of some 2,090 patients, the data of only 382 of them (18.3 %) were consulted and only 127 were eventually referred (6.1 %). Overall, the waiting list decreased to even less than a week.
Conclusions: This programme improves the index of yearly derivations, and has reduced the waiting list period to just a few days. This programme guaranteed early attention to those cases that require it.

P05

Life-long weight gain and metabolic diseases

Rurik I, Kovács E, Szigethy E, Móczár C
Department of Family and Occupational Medicine, University Debrecen, Hungary

Introduction: Patients with diabetes and hypertension represent the largest proportion of primary care patients under continuous care. Evaluation of their parameters usually requires a medical setting, but body weight and height can be measured by the patients themselves and this is often the case.

Aims: To analyse and compare the self-recorded life-long data on weight and estimated BMI of patients with diabetes and hypertension and those without these pathologic conditions.
Patients and methods: 759 elderly people (337 men and 422 women) between 60 and 70 years of age were eventually selected in different primary care settings. Data on recent weight and height, retrospective self-recorded data on weight in every decade since the age of 20y in both genders, and data on weight about gravidity and menopause in females were collected. These were compared with the control group of persons free from diabetes and hypertension.
Results: The current mean body weight and BMI were significantly higher in all groups than at the age of 20y and less than their maximal values. Compared with the control group, men and women with hypertension were approximately at the same weight in their twenties, but they gained more weight in the fourth and fifth decades of their life. Patients with diabetes started at higher weights. The greatest weight gain was observed between 20-30 years in men and between 30-40 years in women, and in the last decade prior to diagnosis in both genders. Weight gain in the control group was steady at a lower rate. Higher increases in body weight in the early youth decades were related to elevated hazard ratios for diabetes in men and for hypertension in women. Pregnancy-related weight changes were higher in women with diabetes. There were no differences between groups in the occurrence of menopausal symptoms.
Conclusions: Weight gain between 20 and 40 years of age may be of great importance in the aetiology of metabolic diseases, therefore stable or at least limited weight gain may help in their prevention. More research with standardized methodology is needed to explore this relationship better: meanwhile more contribution are expected from primary care physicians in the prevention of overweight/obesity and in the weight management of their younger patients.

P06

Risk of diabetes mellitus by FINDRISC scores in two districts of Istanbul: a cross sectional screening study

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Background: Type 2 diabetes prevalence in Turkey has increased drastically from 7.2% to 13.7% in the last 12 years. Screening for impaired glucose tolerance is an important step in diabetes prevention. The FINDRISC questionnaire being feasible, valid and non-invasive seems eligible for primary health care.
Research question for the studied population: What is the diabetes risk profile by FINDRISC scores (FRs)? Does risk stratification by FRs correlate with glycaemia?
Method: The study was conducted in the districts of Gülsuyu, and Esenkent of Istanbul. A population-based (2008 census data) sample size (N=321), stratified according to age and gender, was calculated with a significance level of 0.05, a power of 0.8 and a CI of 95%. Having diabetes and functional impairment limiting participation were exclusion criteria. After informed consent, participants (>=19 years) were enrolled randomly. Primary outcomes were diabetes risk by FRs, including body mass index (BMI), waist circumference (WC) and capillary blood glucose (CBG).
Results: 314 individuals (male 57% (n=179), aged 46±15 years, primary education 44.6% (n=140), married 82% (n=233), housewives 24% (n=66), self employed 23% (n=64), FRs 10±5, CBG 112±36 mg/dL, BMI 28±5 kg/m2) were enrolled. According to FRs, 4% (n=96) were categorized as low risk, 8% (n=131) as slightly elevated risk, 16% (n=53) as intermediate risk, 13% (n=43) as high risk and 4% (n=15) as very high risk. Although women were younger and had lower CBG values (41±13 vs. 50±15 years, 104±25 vs 119±42 mg/dL; both $p<0.001$), their anthropometric (waist circumference men 97.2±11.5cm, women 94±16cm; NS) and diabetes risk profile (FRs men 10±5, women 10±6; NS) was similar to their male counterparts. FRs≥12 were associated with higher CBG values (118±37mg/dL vs. 109±35mg/dL; $p=0.03$).
Conclusions: In the study sample, diabetes risk was clustered in low and intermediate risk groups. Risk stratification with FRs still seemed to distinguish individuals with higher glycaemic values.

P07

Cost-effectiveness of screening for type 2 diabetes. A literature review

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Aims: Diabetes affects 246 million people worldwide and is expected to affect 380 million by 2025**.** Early screening for type 2 diabetes remains controversial in terms of cost-effectiveness. Here we evaluated the evidence about the cost-effectiveness of screening for type 2 diabetes.

Research design and methods: We undertook a systematic review from 1975 to July 2012, using the equation "cost-effectiveness of screening for type 2 diabetes". We selected 33 out of the 179 cases identified using a two-step reading process (abstracts then full texts). We assessed the internal validity of each selected paper. The main outcome was the cost-effectiveness ratio of type 2 diabetes screening.
Results: At all ages, the incremental cost-effectiveness ratio was better among people with hypertension, dyslipidaemia, and obesity compared with universal screening. Nevertheless, the reviewed papers had a moderate internal validity. Regarding the 55 year-old patients, the cost per QALY (Quality-Adjusted Life Year) for a targeted screening was $34 375 compared with to $360 966 for universal screening.
Conclusion: Our review clearly shows that screening targeting a population with high cardio-vascular risk is more cost-effective than mass screening. Furthermore, studies on the high methodologicalcriteria should be required. This information is critical for primary care setting.

P08

Evolution of parameters following instigation of insulin analogue treatment on diabetic patients in primary healthcare

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Aims: To analyse the changes in the regular clinical and analytical control parameters for diabetes following instigation of treatment with basal insulin analogues.
Material and methods: A retrospective observational study on a cohort of patients belonging to two contingents, in the field of basic community and teaching healthcare, recommended for treatment with basal insulin analogues by their doctors. The variables studied before and after instigation of the treatment were: age, sex, previous treatments, insulin prescribed, basal glycaemia, blood pressure (systolic SBP/diastolic DBP), body mass index (BMI), HbA1c and record of hypoglycaemias, collected in a database for two periods (basal and at six months).
Results: a total of 89 patients were studied, 55.1% women, with an average age of 66, treated previously with other types of insulin (39.8%), with oral anti-diabetic drugs (32.3%) and with metformin (23.7%). The HbA1c values decreased from an average of 8.8±1.86% to 7.9±1.21% ($p<0.01$); basal glycaemia dropped from an average of 188.9±78.8 mg/dl to 153.3±61.8 mg/dl ($p<0.001$); SBP decreased from 137.0±17 mmHg to 131.0±17 mmHg ($p=0.013$); DBP dropped from 76.6±10 mmHg to 74.0±12 mmHg ($p=0.012$); and BMI went from 30.1±4.9 to 30.2±4.7 ($p<0.001$). Finally, there were no significant differences between hypoglycaemias pre- or post-study.
Conclusions: the instigation of treatment with insulin analogues in diabetic patients entails a significant improvement in analytic parameters and better control of blood pressure without any change in hypoglycaemic events. Overall, weight increase was minimal.

P09

Prevalence of chronic kidney disease in patients with type 2 diabetes in Spain: PERCEDIME2 study

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Aims: To determinate the prevalence of chronic kidney disease (CKD), stages of CKD, and variables associated with the presence of CKD in patients with type 2 diabetes mellitus treated in primary care consults in Spain.
Methods: The present study was an observational, transversal, and multicentric study with a cohort of 1,145 patients treated in primary care consults. The following data were collected: demographic and anthropometric information; list of present cardiovascular risk factors; previous macrovascular and microvascular disease history; and physical examination and analytical data from the previous 12 months, including the albumin/creatinine ratio (ACR) and glomerular filtration rate (GFR) to evaluate renal function.
Results: With regard to the patients, 27.9% presented some degree of CKD as follows: 3.5% with stage 1; 6.4% with stage 2; 16.8% with stage 3 (11.6% with stage 3A and 5.2% with stage 3B); and 1.2% with stages 4 and 5. The prevalence of patients with ACR $\geq$ 30 mg/g was 15.4% (13% microalbuminuria and 2.4% macroalbuminuria). The following variables were significantly associated with CKD: age; sex (women); systolic arterial pressure $\geq$ 150 mmHg; and a previous history of cardiovascular disease.

Conclusions: The results showed that the prevalence for CKD was 27.9%. A systematic determination of ACR and GFR may contribute to an early diagnosis, thus allowing intervention during the initial stages of the disease when treatment is more efficient.

P10

Prevalence of CVD risk factors in young adults, students at Lodz universities

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Aims: Early identification of young people at CVD risk is crucial for effective prevention and treatment. The aim of the study was to assess the prevalence of CVD risk factor metabolic syndrome (MS) components in young adults.
Material and methods: The study was carried out in 2006-2007 on a group of 1,019 primary care students: 709 women (W) and 310 men (M), aged 18-38 years (mean 24.6). A clinical interview was conducted regarding: age, socioeconomic factors, lifestyle, health state, family health history. Basic anthropometric measurements and laboratory investigation were performed. Body Mass Index (BMI), waist-hip ratio (WHR) and insulin-resistance were calculated. The prevalence of MS components was qualified according to the World Health Organization (WHO), National Cholesterol Education Program (NCEP)- Adult Treatment Panel (ATPIII) and International Diabetes Federation (IDF) criteria.
Results: Mean BMI was 21.29 in W and 24.4 in M. Overweight according to (acc.) BMI was diagnosed in 17.66% (W:M respectively: 11%:32.9%); obesity in 3.02%(1.12%:7.4%). Abnormal waist circuit (WC) acc.ATP III criteria in 6.08% (4.94%:8.71%), acc.IDF criteria 16.19% (14.67%:19.68%). Overweight acc.WC IDF, was found in 11.87% (11.70%:12.26%); obesity 4.32% (2.96%:7.42%). Abnormal WHR in 10.68% (5.70%:22.07%). Hypertension acc.ATP III and IDF (RR≥130/85) was diagnosed in 4.61% – men only (M15.16%); acc.WHO (RR≥140/90) in 2.06% -men only (M6.77%). Hyperglycaemia was diagnosed in 0.78% (0.84%:0.64%). Dyslipidaemia: total cholesterol concentration (CH) in 12.56%;LDL in 2.06%; HDL in 6.64%; TG in 7.69%. Hyperinsulinemia in 1.28%. Metabolic syndrome acc.WHO criteria was diagnosed in 2.65% (1.13%:6.13%); 3MS components (MSC) in 0.88% (0.14%:2.58%); 2MSC in 1.77% (0.99%:3.55%); acc.ATPIII in 0.59% (0.56%:0.65%); 3MSC in 0.49% (0.42%:0.65%); 4MSC in 0.09% -1woman(W 0.14%); acc.IDF in 0.98% (0.56%:1.93%); 4MSC in 0.29%(0.28%:0.32%); 3MSC in 0.68% (0.28%:1.61%); 2MSC in 5.39% (3.5%:9.67%).
Conclusions: The results of our study confirm a higher incidence of CVD risk factors in young men than women and a relatively high incidence of overweight, obesity and dyslipidaemia, whereas other risk factors are of a relatively lower percentage.

P11

"Zoet Zwanger" (sweet pregnancy) project: a prevention program for women who had gestational diabetes in Flanders, Belgium

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Aims: Gestational diabetes (GDM) strongly predicts the future development of type 2 diabetes. This clearly offers unique opportunities for diabetes prevention and early diagnosis. However, long-term follow-up is often lacking. The "Zoet Zwanger" project was launched in October 2009 in the region of Flanders, Belgium, to promote regular blood glucose screening in primary care, and lifestyle changes in women with previous GDM.
Materials and methods: The first part of the project consisted of an awareness campaign to make GDM women and all involved health care providers more aware of the unique possibilities for prevention and early detection of type 2 diabetes. Secondly, women diagnosed with GDM were prompted to participate in a recall register with annual reminders asking them to see their general practitioner for a fasting blood glucose measurement. Collected parameters included compliance with proposed blood glucose screening, screening results and BMI.
Results: By 15/07/2012, 2,566 women had voluntarily registered. The mean age of participating women was 32 ±5 years. 21% of these women had a BMI ≥30 before pregnancy. Follow-up results were obtained for 84% of the women who had been sent their first reminder 1 year after delivery. Of these women, 63% (n=575) reported having a fasting glucose test for diabetes. 9% (n=51) reported impaired fasting glucose (IFG) and 0.7% (n=4) women reported type 2 diabetes.

Conclusion: This project offers a clear practice framework to promote diabetes prevention and early diagnosis in women with previous GDM. 9% of the women who had undergone a screening test 1 year after delivery had already reported IFG. These are alarming data because they are a group of young women who will probably develop type 2 diabetes in the next few years.

P12

Multifactorial control of type 2 diabetes and intensity of treatment in Girona (Spain). GIRODIABCONTROL Study

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Aims: To analyse the clinical characteristics and levels of glycaemic and cardiovascular risk factor control in patients with type 2 diabetes at primary health care centres in Girona (Spain).
Methods: A cross-sectional study of a total population of 353,390 individuals aged 31-90 years at the end of 2009. Clinical data were obtained retrospectively from electronic clinical records.
Results: A total of 24,578 patients with type 2 diabetes were identified (6.95%). 55% were men, the mean (SD) age was 67.5 (11.8) years, and the mean duration of the disease was6.8 (5.3) years. The mean (SD) A1C value was 6.75 (1.5) and 55% of the patients had A1C ≤ 7%. The mean (SD) blood pressure (BP) was 138 (13.6)/76.3 (8.4) mmHg; the mean total cholesterol concentration was 196.0 (38.7) mg/dL; the mean HDL cholesterol concentration was 51.5 (4.0) mg/dL; the mean LDL cholesterol concentration was 114.1 (32.6) mg/dL and the mean BMI was 29.4 (4.9) kg/m2. A total of 31.6% of the patients had BP values ≤ 130/80 mmHg; 35.6% had LDL-C values ≤ 100 mg/dL; 17.28% had albuminuria (14.77% microalbuminuria and 2.51% macroalbuminuria); 19.78% had chronic renal impairment (GFR < 60 mil/min/1.73m2) and 43.6% had BMI values ≥ 30 kg/m2. 23% of diabetic patients didn't take antidiabetic drugs. Regarding medicated diabetic patients, 38.6%, 17.5% and 1.3% were prescribed one, two or three antidiabetic drugs, respectively, and 18.9% received insulin therapy.
Conclusions: The results of this study indicate a similar control of glycaemia and cardiovascular risk factors in patients with type 2 diabetes when compared with previous studies. Compared with other studies, diabetic patients in Girona receive fewer antidiabetic drugs and insulin.
Acknowledgements: Physicians and nurses working at the Catalan Health Institute and the MSD Laboratory (USA) for funding the project.

P13

Treatment of hyperglycaemia in type 2 diabetic patients in a primary care population register in Catalonia (Spain)

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Aims: To describe glycaemic control and antihyperglycaemic treatment in patients with varying durations of type 2 diabetes in a population based register.
Methods: A cross-sectional survey of 286,791 patients with type 2 diabetes registered in the primary care centres of the Catalan Health Institute (Catalonia, Spain) in 2009. We analysed the effects of types of treatment, diabetes duration, renal function and the presence of diabetes complications and other cardiovascular risk factors on glycaemic control.
Results: 24% of patients were treated with lifestyle changes only, 35.5% with oral glucose-lowering monotherapy, 21% with oral combinations and 17.7% with insulin (alone or in combination). Insulin was more frequently used in patients with longer duration of diabetes or severe renal impairment. 56% of patients achieved the optimal target of HbA1c only, 35.5% with oral glucose-lowering monotherapy, 21% with oral combinations and 17.7% with insulin (alone or in combin during the lower steps of treatment (p<0.001). Impaired renal function was present in 18.4% of patients. A significant number of patients with severe renal impairment were taking metformin (16.2%) or sulfo-

nylureas (12.1%), which are contraindicated at this stage. Multivariate analyses showed that lower steps of treatment, advanced age and fewer years duration were the variables positively related to good glycaemic control.
Conclusions: Glycaemic control deteriorates with the progression of glucose-lowering treatment. Impaired renal function was frequent and a significant proportion of these patients were taking contraindicated drugs.

P14

Prescribing liraglutide to patients with type 2 diabetes in a clinical practice setting: the EVIDENCE study

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Aims: EVIDENCE study is a post-marketing authorization observational study that aims to assess the effectiveness, conditions of use, and adherence to liraglutide treatment in patients with type 2 diabetes (T2D) in a clinical practice setting. This is a national multi-centre study in France that will last 2 years.
Materials and methods: The primary objective is to determine the percentage of patients still taking liraglutide after 2 years and with A1c <7%. Secondary objectives include A1c, fasting glycaemia, weight, adherence to treatment, tolerance, and treatment satisfaction, assessed using the Diabetes Treatment Satisfaction Questionnaire. An interim analysis is scheduled at 1 year. The cohort was calculated at 2,845 patients (contact lost and missing data estimated at 40%) recruited by 750 consultants and 2000 general practitioners. Diabetologists/endocrinologists (n=2300) and general practitioners (n=19,280) involved in the care of patients with T2D using injectable antidiabetic medication were randomly selected from a database, and contacted by letter, telephone, and email
Results: Of the doctors contacted, 3,453 (16%) agreed to take part in the study. A total of 2,162 centres were set up (645 consultants and 1,517 general practitioners, i.e. 28% and 8% of the doctors contacted, respectively) and 46% of them recruited ≥1 patient (69% and 31%, respectively). In the past 12 months, 3,151 patients have been included. In this study, 59% of the doctors work in urban communities with<100,000 inhabitants, and 9% work in the Paris area. The average age of the doctors was 51, and 36% of the doctors were female. Despite the difficulties in recruiting doctors, the number of patients included in the study reached the target set.
Conclusion: The EVIDENCE study will provide information about the effectiveness of liraglutide after 2 years and how well the treatment is adhered to and tolerated in clinical practice.

P15

Baseline observations from the EVIDENCE Study: characteristics of type 2 diabetes patients initiating liraglutide

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Background and aims: EVIDENCE is a post-marketing requested by the French National Authority for Health. It aims to describe the characteristics of patients treated with liraglutide, the conditions of use for this product, the treatment compliance rate, the reasons for discontinuing treatment and the change in HbA1C, weight and long-term safety (2 years). The baseline characteristics are presented here.
Design and methods: EVIDENCE is a multicentre, prospective, observational study led in ambulatory settings. French diabetologists and general practitioners (GPs) recruited 3,137 patients starting treatment with liraglutide. Patients and physicians completed questionnaires at study entry, 3 months and 6 months, the nat six-monthly intervals for a further 18 months.
Results: There were 546 GPs and445 diabetologists who recruited 1,390 and 1,747 patients respectively. 53% were male. Their mean age was 59 years (SD 11). On average, BMI was 34 kg/m^2 (SD 6,7). The mean duration of diabetes was 10 years (SD 6). One-third of the patients showed at least one diabetes-related complication.
The mean HbA1c was 8.5% (SD 1.5%) whereas 9.8% of patients had an HbA1C < 7%. 7% of patients had experienced hypoglycaemia during the 4 weeks preceding inclusion.
Physicians stated that life style advice was offered to 95.2% of patients but these adhered mildly. At inclusion, 84% of patients were treated by two or more antidiabetic agents. Metformin was prescribed to 88% of patients, then by decreasing percentage rank, sulfonylurea (57%), dipeptidyl peptidase-4 inhibitor (40%) , and insulin (16%). The

main reason for initiating liraglutide was the lack of efficacy of the current treatment (84.1%), where aside effects were declared by 6.2% of physicians.
Conclusion: The main reason for prescribing liraglutide was the poor control of diabetes. Apart from those patients treated with insulin, this is in accordance with regulatory indication of liraglutide.

P16

GAPP2™: Global survey of type 2 diabetes insulin analogue users shows extensive impact of self-treated hypoglycaemia and dosing irregularities on diabetes management in primary care

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Aims: To gain insight into the real-world impact of self-treated hypoglycaemia (hypo) and dosing irregularities on type diabetes (T2DM) management, a large global online survey (GAPP2™) was carried out among insulin analogue (IA) patients and healthcare professionals.
Design and methods: The survey was performed in 6 countries (USA, Canada, Japan, UK, Germany, Denmark). Data are presented from 3,042 T2DM patients using IAs and 686 PCPs.
Results: In the last 30 days, 22% of patients missed, 24% mis-timed by >2 hours and 14% reduced a dose of basal insulin (BI). Some patients had missed, mis-timed or reduced five or more BI doses (17%, 27% and 27% respectively) which was close to or greater than the number of BI dosing irregularities that PCPs thought would impact glucose control (4.3±0.16, 5.7±0.29 and 4.9±0.21 respectively).
In the last 30 days, 36% of patients had experienced a hypo. PCPs reported lower levels of patient reported worry about hypos compared to direct patient reports, particularly around nocturnal events (17.5% vs 42%) and hypos while driving (14% vs 40%).
PCPs reported that hypos impacted their T2DM management. Some (38%) PCPs reported being contacted at least once a month by an IA patient after a hypo, 82% consider hypo risk when choosing which insulin to initiate, and 53% use a lower than recommended initial insulin dose. In response to a hypo, PCPs usually advised patients to reduce temporarily (18%), reduce long term (14%) or split (3%), their BI dose.
Conclusions: Hypos and dosing irregularities in T2DM IA patients are significant issues in primary care. Hypos impact insulin initiation and dosing, yet PCPs underestimate patient concern about hypos. A significant proportion of patients continue to dose irregularly at levels which PCPs consider likely to adversely affect glucose control.

Note: The GAPP2 surveys were supported by a grant from Novo Nordisk.

P17

Liraglutide+metformin in type 2 diabetes: clinical benefits with early use of liraglutide and switch from sulphonylurea

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Aims: No consensus exists for advancing treatment after first-line metformin fails. This *post-hoc* analysis compared clinical benefits associated with add-on liraglutide to metformin monotherapy (metformin-add-on) vs sulphonylurea (SU) substitution with liraglutide in metformin+SU combination therapy (metformin-SU-switch).
Methods: Data are from a large clinical trial (n=988) in which metformin monotherapy or metformin+SU (SU dose: ≤50% of maximum approved dose) was changed to metformin+liraglutide 1.8 mg.
Results: Diabetes duration was longer in the metformin-SU-switch group. After 12 weeks, greater weight loss occurred in the metformin-SU-switch group. HbA_{1c} reduction and HbA_{1c} target value (<7.0%) attainment was greater in the metformin-add-on group (Table).
Conclusion: SU termination with switch to liraglutide may be beneficial for weight reduction. While standard clinical practice of liraglutide add-on to metformin achieves greater HbA_{1c} reductions in a bigger proportion of patients, switching from metformin-SU to metformin-liraglutide may still prove superior for certain patients. However, these data suggest the effect of liraglutide depends on prior treatments and possibly diabetes duration.

	Metformin-add-on (n =5 32)		Metformin-SU-switch (n = 285)	
	Baseline	Change	Baseline	Change
Age (years)	56 (9.8)	–	58 (9.3)	–
Diabetes duration (years)	6.5 (5.4)**	–	9.0 (6.2)	–
HbA_{1c} (%)	8.0 (0.86)	–1.3 (0.04)**	7.7 (0.48)	–0.6 (0.04)
Patients reaching HbA_{1c}<7.0% at 12 weeks (%)	–	69.7**	–	44.6
Weight (kg)	99.4 (21.44)	–3.7 (0.18)*	98.4 (20.03)	–4.4 (0.21)
FPG (mmol/L)	9.8 (2.24)	–2.2 (0.09)	9.3 (1.84)	–0.8 (0.12)
Systolic blood pressure (mmHg)	134.2 (16.09)	–4.2 (0.79)^{NS}	135.1 (15.65)	–3.7 (0.91)

Data for patients completing 12 weeks' treatment. Baseline=mean (SD); change from baseline=mean (SE); no imputation for missing values. NS, *p=0.019 and **p<0.0001 vs. metformin-SU-switch (ANCOVA).

P18

In T2D patients with baseline A1c <8.0%, liraglutide achieves A1c targets more often than sitagliptin or exenatide

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Aims: Limited data are available on the efficacy of incretin therapies in type 2 diabetes (T2D) patients who are near but not at glycemic target.
Methods: Our post-hoc analysis compared the efficacy of liraglutide 1.8 mg once-daily (OD) to exenatide 10 µg twice daily (BD) (LEAD-6) and to sitagliptin 100 mg OD (LIRA–DPP-4) after 26 weeks' treatment; only patients treated as add-on to only metformin with a baseline A1c <8% were included.
Results: In LEAD-6 and LIRA-DPP-4, liraglutide treatment resulted in a significantly higher proportion of patients achieving both glycaemic targets compared to exenatide and sitagliptin, respectively (Table). Weight loss with liraglutide was greater vs. exenatide but did not reach statistical significance, whereas the difference was significant vs. sitagliptin. Few patients (8-10%) experienced minor hypoglycaemia with all therapies.
Conclusions: In patients already close to target, liraglutide 1.8 mg brings significantly more patients to target than exenatide or sitagliptin. This should be considered by clinicians when adding to metformin therapy in patients close to target.

Table. Efficacy of incretin therapies in patients already close to target

	LEAD-6			LIRA–DPP-4		
	Liraglutide 1.8 mg OD (n = 4)	Exenatide 10 µg BID (n = 41)	ETD [95% CI]	Liraglutide 1.8 mg OD (n = 72)	Sitagliptin 100 mg OD (n =61)	ETD [95% CI]
Change in A1c, % (SE)	–0.87 (0.09)	–0.60 (0.09)	-0.27 [–0.55; 0.00][a]	–1.01 (0.08)	–0.48 (0.08)	–0.53 [–0.76; -0.30][d]
Patients to target, %:			OR [95% CI]			OR [95% CI]
≤6.5%	64.5	35.1	3.4 [1.3; 8.6][b]	52.8	18.9	4.8 [2.1; 10.9][c]
<7.0%	84.0	61.5	3.3 [1.2 to 9.5][b]	77.6	36.7	6.0 [2.7; 13.1][d]
Change in weight, kg (SE)	–3.68 (0.48)	–2.62 (0.51)	–1.06 [–2.54; 0.42]	–3.46 (0.41)	–0.50 (0.44)	–2.96 [–4.19; –1.73][d]

Data are least squares (LS) mean from intent to treat population (ITT), last observation carried forward (LOCF). Analysis of covariance on ITT, LOCF for estimated treatment differences (ETD). Logistic regression on ITT, LOCF for odds ratio (OR).
[a]p=0.05; [b]p<0.05; [c]p<0.005; [d]p<0.0001.

P19

Patients are more likely to reach A1Ctarget when liraglutide is added to an SU than adding rosiglitazone or placebo

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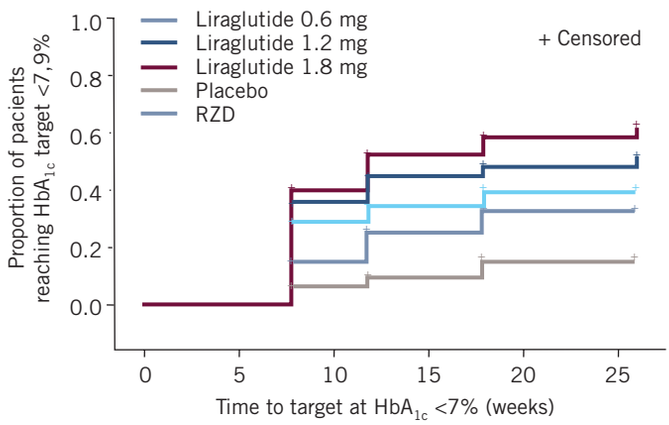
Aims: To determine the proportions of patients reaching target A1C <7.0% in a phase 3a trial: liraglutide vs. rosiglitazone or placebo, all as add-on to SU (LEAD-1).
Methods: The incidence of subjects reaching target at 8, 12, 18 and 26 weeks was visualised by a Kaplan-Meier plot. "Time to A1C target" was analysed by a Cox hazards model, with current and previous treatment as fixed effects and baseline A1C as covariate.
Results: The proportion of subjects reaching target was greater with liraglutide vs. rosiglitazone and placebo (Figure). With liraglutide 1.8mg, the estimated hazard ratio (HR) was 2.94 [95%CI: 2.21; 3.92], representing an estimated chance of reaching target at any given time during treatment almost two times higher for liraglutide 1.8mg than rosiglitazone (p<0.0001). With liraglutide 1.2mg, the HR was 2.08 [95%CI: 1.54; 2.79], representing an estimated chance of reaching target 108% higher for liraglutide 1.2mg than rosiglitazone (p<0.0001).
Conclusion: We demonstrate liraglutide is significantly more likely than rosiglitazone to help patients achieve target A1C quickly

Figure. Proportion of subjects at target HbA_{1c}<7.0% during LEAD-1 at 8, 12, 18 and 26 weeks



1	228	228	228	151	124	124
2	228	228	228	129	97	97
3	229	229	229	129	85	85
4	111	111	111	89	72	72
5	230	230	230	180	130	130

P20

Evaluation of the implantation of a diabetic retinopathy screening program in a basic health area

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Aims: To assess the degree of implementation of a screening program for diabetic retinopathy (DR) and the diagnostic agreement between primary care (PC) and specialized care.To estimate the economic impact of the program.
Methods: Descriptive observational study.
Setting: basic health area with 41,682 users distributed among three health centres. From April 2010 to May 2012. Inclusion criteria: diabetic patients with non-mydriatic retinal photographs (NMRP) performed in the basic area. Exclusion criteria: immobilized patients or patients with monitoring DRby the department of ophthalmology. Measurement variables: diagnostic prevalence (percentage of NMRP with positive diagnosis / number of NMRP), coverage (NMRPmade/100 diabetic patients), degree of diagnostic agreement (ratio of potential positive diagnostic PC/ diagnostic confirmation of NMRP by the ophthalmologist). Procedure: NMRP with suspicious or uncertain diagnosis

were referred by tele-ophthalmology to a specialist. Data analysis: Chi-square CI [95%]. Statistical analysis with SPSS®19.0.
Results: 881 NMRP were made, 55.6%of them on men and 44.4% on women. CI age 95%: 65.36 years old [64.61-66.10]. 7.60% of the tests had DR. Coverage: 34.63%. Degree of agreement: 76.8% of NMRP derived by PC as positive or doubtful were confirmed (Chi-square = 0.000). 57.3% of the telemedicine consultations did not require specialized care (Chi-square = 0.000). Economic impact: 801 specialized consultations with a cost of 136,145.97 € were avoided. No indirect costs were calculated. Limitations: for the calculation of the coverage, diabetic patients with prior monitoring by the specialist and not screening candidates could not be distinguished.
Conclusion: A screening program for DR in PC has been implemented. 7.6% positive diagnoses for DR were found. The degree of coverage can be improved. Diagnostic agreement was about 77% and the minimum savings of direct costs were 136,145.97 €. An improvement of the coverage of the program would lead to further savings in direct costs.

P21

Effect of insulin degludec vs insulin glargine in a one-year randomized trial in insulin-naïve patients with type 2 diabetes

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Aims: Insulin degludec (IDeg) is new basal insulin with an ultra-long, flat action profile. This 52-week randomized, open-label, non-inferiority, treat-to-target trial compared insulin degludec (IDeg) to insulin glargine (IGlar) given once-daily in insulin-naïve type 2 diabetes subjects inadequately controlled with oral antidiabetic drugs (metformin±DPP-4 inhibitor).
Design and methods: 1,030 adults (mean age 59.1 yrs; diabetes duration 9.2 yrs; HbA_{1c} 8.2%; fasting plasma glucose [FPG] 175 mg/dL) were randomized 3:1 to IDeg or IGlar. Both insulins were titrated to plasma glucose targets of 70-89 mg/dL.
Results: Patient completion rates were 79% (IDeg) and 77% (IGlar). IDeg reduced HbA_{1c} (-1.06%) non-inferior to IGlar (-1.19%) (estimated treatment difference [ETD] IDeg-IGlar: 0.09% [95%CI: -0.04; 0.22]). FPG reductions were significantly larger with IDeg than IGlar (-67.7 vs -59.5 mg/dL; ETD: -7.7 mg/dL [95%CI: -13.3; -2.3]; p=0.005). Overall confirmed hypoglycaemia (PG<56 mg/dL and severe episodes requiring assistance) rates were similar for IDeg and IGlar (1.52 vs 1.85 episodes/patient-yr; estimated rate ratio (ERR) IDeg/IGlar: 0.82 [95%CI: 0.64; 1.04]; p=0.11). Nocturnal confirmed hypoglycaemia rates were significantly 36% lower with IDeg (0.25 vs 0.39 episodes/patient-yr; ERR: 0.64 [95%CI: 0.42; 0.98]; p=0.04). Overall severe hypoglycaemia was significantly lower with IDeg (0.003 vs 0.023 episodes/patient-yr; ERR: 0.14 [95%CI: 0.03; 0.70]; p=0.02). End-of-trial mean daily insulin doses were 0.59 (IDeg) and 0.60 (IGlar) U/kg. Mean weight gain was similar: 2.4 kg (IDeg); 2.1 kg (IGlar). Adverse event rates were low and similar between groups.
Conclusion: In this treat-to-target trial, IDeg and IGlar provided similar long-term glycaemic control, with significantly lower rates of nocturnal hypoglycaemia with IDeg.

P22

Health literacy in patients with type 2 diabetes and its relationship with glycemic control and sociodemographic factors: preliminary results of a descriptive study

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Introduction: Diabetes mellitus (DM), a preventable chronic disease with a complicated treatment regime, ranks eighth among mortality causes in Turkey, representing a big health problem. Health literacy defined as the cognitive and social skill determining motivation and ability to gain access, to understand and use information to promote and maintain good health can be measured and has been shown to reduce morbidity and mortality of chronic diseases like DM.
Aims: To assess generic health literacy levels in type 2 diabetic individuals; to compare health literacy levels in diabetic individuals with matched non-diabetic controls;
to assess associations of health literacy levels with related diseases (i.e. glycemic control) and sociodemographic parameters.

Methods: Study design: Cross-sectional, descriptive. Setting: Dr. Lutfi Kirdar Kartal Training and Research Hospital, Ophthalmology and Diabetes outpatient clinics. Study population: 100 type 2 diabetic patients and 99 non-diabetic controls. Data collection tools: Newest Vital Sign (NVS), Rapid Estimate of Adult Literacy in Medicine (REALM) tests, sociodemographic and disease-related information questionnaire (developed by the researchers). Inclusion criteria: History of type 2 diabetes >6 months, being literate, no cognitive or functional impairments, age >=18 years (diabetic individuals); no diagnosis of any chronic disease, being literate and age>=18 years (controls). Statistical analyses: Descriptives (%, mean+-SD, median and range), student t- test for parametric and chi square tests for non-parametric variables. Multiple regression was used to identify determinants of health literacy levels.
Results: Sociodemographic characteristics of the study population are given below:

	Diabetic individuals (n = 100)	Control group (n = 99)
Age	53.2 ± 12.4 years	48.0 ± 14.3 years
Sex	53% male, 47% female	51.5% male, 48.5% female
Education	57% primary	43.4% primary
Marital status	81% married	75.5% married
Economic status	78% middle	68.7% middle
Business position	47% unemployed	33.3% unemployed

Diabetic patients were older than control group patients (p=0.0.7, student t test).
Multiple Linear Regression identified educational level (p<0,001) and economic status (p=0.028) as independent determining factors for the REALM level for both groups**.**
In diabetic patients, REALM levels were associated with educational level and economic status, whereas, this was the case only for educational level in the control group.
Multiple Linear Regression identified educational level (p<0,001) as a determinant for NVS level in both groups.
NVS and REALM scores were similar in diabetic patients and controls.
There was no association between REALM, NVS scores and HgbA1c level.
Conclusion: In the present sample studied, being diagnosed with a chronic disease such as diabetes was not associated with health literacy. The relation between health literacy and sociodemographic factors, such as education and economic status, is consistent with similar studies. To our knowledge, our study is the first health literacy study conducted with diabetic patients in Turkey which did not yield an association between health literacy level and glycemic control, which might be a type 2 error due to a small sample size. Similar studies with larger samples are required.

P23

ACHIL: Methodology of the evaluation of the national care trajectory diabetes

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Background: In order to improve quality of care for chronic conditions, in 2009 the Belgian National Institute for Health and Disability Insurance created care trajectories (CTs) for type 2 diabetes mellitus (T2DM). A CT, formalised by a contract between patient, GP and specialist, aims to ensure integrated, evidence-based, multidisciplinary and structured care for chronic diseases in primary care.
The Ambulatory Care Health Information Laboratory (ACHIL) study assesses the effect of CT diabetes on quality of care improvement, defined as adherence to guidelines, based on quality parameters of processes and outcomes.
Research questions: Does inclusion in a CT lead to a better quality of diabetes care, both over time and in comparison with other clinically comparable patients?
Methods: Observational study, cohort study and cross-sectional study. Setting: Belgium, 2006-2011, primary care. Respondents: Belgian patients who started a CT diabetes between 01/09/2009 and 31/12/2011. Data sources: 1) limited outcome data on all CT patients, provided by all Belgian GPs; 2) reimbursement process data on all CT patients and a control group of diabetic patients; 3) data from a sample of CT patients and a control group from an electronic, regional, EPR-based registration network of GPs; and 4) data from a sample of CT patients and a control group from a paper-based national sentinel GP network. Analyses: By means of logistic multilevel analysis of cross-sectional and longitudinal data, the effect of the main predictor (inclusion in the CT) on the outcome (evolution in obtaining a target of a quality indicator for diabetes between 2006 and 2011) will be estimated, taking into account potential confounders.

Results: The aim of the CT is to be a significant predictor in obtaining targets of quality indicators in several domains of care for T2DM.
Conclusions: Data analysis is ongoing. Results will be available from May 2013 on.

P24

Usefulness of mobile apps for diabetics

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Purpose: There are 3.4 million diabetics in Spain (40 million total population), with 5% annual growth. There are 50 million mobile phones. The large majority of mobile phone app users are on the Android™ operating system (45%), followed by iOS™ (36%). We propose a revision of the existing apps (Android™ and iOS™) related to Diabetes (for both patients and professionals).
Design and method: We checked the apps available at both Play Store™ and Apple Store™ using the search word "Diabetes" with the following search variables: Price (free or amount in euros); target/customer (patients or professionals); language (Spanish, English, others); and app content.
Results: Play Store™ (n=1018): Language (85% English, 14% Spanish); target/customer (77% patients); price (59% free); contents: diets or recipes (23%), profiles (17%), information about the illness for patients (21%), six Guides, one about pregnancy, two for children, two chat forums, four websites, two digital magazines. Apple Store™ (n=305): Language (85% English, 11% Spanish); target/customer (75% patients); price (56% free); contents: diets or recipes (10%), profiles (31%), information about the illness for patients (18%), two Guides, one about pregnancy, two for children, two chat forums, three websites, the digital magazines. App only available for professionals: training, e-books, summits, insulin administration.
Conclusions: Despite the fact that the servers being used were in Spain, only 12% of the interfaces were in Spanish. The large majority of them focus only on patients (76%). Free apps are mostly downloaded (58%). Many of the apps for patients consist only of a diary, with graphs for different profiles and illness recommendations or diets/recipes specially written for diabetics. There is enough information among doctors about the illness and insulin administration. The lack of information for pregnant women, children (the group that downloads the most apps) is particularly striking.

P25

Case note survey of T2D patients prescribed incretin therapies according to current recommendations in clinical practice

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Aims: To assess the clinical and cost-effectiveness and patient preference for incretin-based therapies when initiated according to National Institute for Health and Clinical Excellence (NICE) recommendations in UK clinical practice.
Methods: In a retrospective chart audit, anonymised data were collected for patients receiving incretin-based therapy in clinical practice according to NICE recommendations. Parameters assessed included HbA1c, weight, the proportion of patients achieving NICE treatment continuation criteria, adverse events, and treatment discontinuation. Based on observed treatment effects, drug cost-effectiveness was also assessed. Treatment preference for a dipeptidyl peptidase-4 (DPP-4) inhibitor or glucagon-like peptide-1 receptor agonist (GLP-1RA) was assessed prospectively.
Results: 1,114 patients were followed up for a median of 48 weeks (256 received liraglutide, 148 exenatide, 710 DPP-4 inhibitor). Liraglutide reduced HbA1c significantly more vs. exenatide or DPP-4 inhibitor (both $p<0.05$). Weight changes were similar for both GLP-1RAs but were significantly greater vs. DPP-4 inhibitors (both $p<0.05$). NICE treatment continuation criteria were met by 32% and 24% of liraglutide 1.2 mg- and exenatide-treated patients (≥1% HbA1c reduction, ≥3% weight loss) and 61% of DPP-4-inhibitor-treated patients (≥0.5% HbA1c reduction). Life-years/patient gained were 0.12, 0.08, and 0.07, and costs/quality-adjusted life-year were £16,505, £16,648, and £20,661 for liraglutide, exenatide and DPP-4 inhibitors, respectively. Most patients preferred the GLP-1RA profile, with these patients having higher BMI, HbA1c and diabetes duration than those preferring the DPP-4 inhibitor profile.
Conclusions: Liraglutide provided the greatest reductions in HbA1c and bodyweight, with a more cost-effective profile than exenatide or DPP-4 inhibitors. Patients with more advanced disease preferred GLP-1RAs vs. DPP-4 inhibitors.

P26

Cancer as a leading cause of mortality in a cohort of newly diagnosed type 2 diabetic patients

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Aims: To describe rates and causes of mortality in a cohort of newly diagnosed type 2 diabetes mellitus (T2DM) patients in primary care.
Methods: Observational cohort study of 598 T2DM patients diagnosed in an urban primary care centre from 1991 to 2000 and followed up until July 2011. Patients without a previous glycaemic test in the three years before diagnosis were excluded to assure they were at the beginning of the disease. Causes of death were obtained from electronic clinical records and validated in the mortality register of the Spanish National Statistics Institute. Mortality rates per 1,000 patients/year for total, cardiovascular, cancer and other causes by sex and age at diagnosis were calculated. Kaplan-Meier survival curves were made and compared using the log-rank test.
Results: 469 patients fulfilled the inclusion criteria (mean age [SD]: 60.4 [10.7] years; 53.9% women). 146 (31.1%) patients died: 72 men and 74 women during a median follow-up of 13 years. Mortality rates per 1,000 were 26.98 (95%CI 21.11-33.97) in men and 22.55 (17.71–28.31) in women. The cancer mortality rate (7.39; 5.37-9.93) was greater than the cardiovascular rate (6.22; 4.38-8.57), and significantly different by sex for cancer (11.61; 7.89-16.49 in men and 3.96; 2.11-6.78 in women; p=0.001). The most frequent were lung cancer (12.5% in men and 0% in women; p<0.01) and colorectal cancer (8.3% in men and 2.7% in women, p=ns). Kaplan-Meier survival curves showed that a history of smoking (p=0.007) and mean HbA1c<7% during follow-up (p=0.027) were significantly related to lower survival in men, but not in women. Mean survival time was lower in men than in women in the <65 age group (p=0.05).
Conclusions: Cancer was the first cause of mortality in men and cardiovascular disease was the first cause of mortality in women. Only one quarter of patients died due to a cardiovascular cause.

P27

A descriptive study about blood glucose measurements and factors affecting diabetes in women with two different socio-economic profiles in Istanbul

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Aim: Screening and metabolic and anthropometric measurements in two groups of women who applied to family health-care centres (FHHCs) for any reason (without diagnosis of diabetes). The FHHCs involved deal with people from different socioeconomic backgrounds. We compared these metabolic syndrome parameters between two groups of women.
Design and method: The study included 100 women between 18-50 years of age who applied to the Gülsuyu (socio-economically low) and Erenköy (socio-economically high) FHHCs who had not been diagnosed with diabetes. Of the 147 people interviewed, 28 refused to take part in the study and 19 were not included in data analysis. Those willing to participate signed an informed consent form. Spot capillary blood glucose, BMI, body fat ratio and anthropometric parameters were measured. A face-to-face questionnaire was applied in order to gauge their socioeconomic status (p<0,05).
Results: 100 women were included. The difference between the mean blood glucose levels of patients from two different FHCCs was not statistically significant (p=0.97). Mean values of body fat levels, income, BMI levels of two groups were statistically significant (p<=0.01 forall of them). The blood glucose levels of 94% of the women (n=47) from Erenköy FHCCs were <140mg/dl. The blood glucose levels of 92% of the women (n=46)from Gülsuyu FHCCs were <140mg/dl. The BMI levels of 14% of the women (n=7) from Erenköy FHCCs were>=31kg/m2. The BMI levels of 28% of the women (n=14) from Gülsuyu FHCCs were>=31kg/m2.
Conclusion: Anthropometric measurements from Gülsuyu FHCC were higher than those from Erenköy FHCC and this difference was statistically significant. The income levels of women from Erenköy was significantly higher than those from Gülsuyu. This reveals that people with higher socioeconomicst at us may have fewer risk factors of diabetes. It may be useful to inform people about susceptibility to diabetes when they apply to the first step health-care centres.

P28

Individualized metabolic control in a primary care health centre

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Purpose: To discover metabolic control (individualized following the Spanish Diabetes Society [SED] recommendations of 2010) in patients with type 2 DM from a primary care health centre.
Design and method: Transversal descriptive study. Population: We analysed 302 subjects from a total of 2,985 type 2 DM sufferers. Variables: age, sex, years of evolution, glycated haemoglobin (HbA1c), therapy received and complications. Statistical analysis: Chi-square and T-Student tests. In order to compare the results, we divided them into two groups: Group 1, 29% of patients (under 70 and with fewer than ten years of evolution and without complications) and group 2: 71% either older than 70 or with over ten years of evolution or with complications.
Results: We observed an adequate control in 37.2% of group 1 (with a stricter objective according to the SED) who had HbA1c <6.5% versus 62.3% of group 2, who had HbA1c <7.5%.
In group 1,50% of patients were treated with oral monotherapy,9% with diet only and 20% with insulin (alone or with other associated drugs). In group 2, 32.8%of patients had oral monotherapy, 38% of patients received treatment with insulin (alone or combined) and 8% received only dietary treatment.
The most frequent macrovascular complication was ischemic cardiopathy (52%) followed by cerebrovascular disease (31%) and peripheral artery disease(17%), which was more frequent among men($p<0.05$). Within microvascular complications, retinopathy (42%) was the most frequent, being more prevalent amongmales ($p <0.05$), followed by nephropathy (36%) andneuropathy (20%).
Conclusion: An important number of patients with an insufficient degree of control, especially among those younger than 70, had had the disease for fewer than ten years without complications, whereas stricter metabolic control gave stronger evidenced results about the predicted development of complications. Metabolic control was worse in patients receiving less treatment, probably related to greater clinical inertia.

P29

Insulin degludec is superior to sitagliptin in improving glycaemic control in insulin-naïve patients with type 2 diabetes

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Aim: To compare the efficacy and safety of ultra-long-acting insulin degludec (IDeg) tositagliptin (Sita), a DPP-4 inhibitor, in a 26-week, open-label trial.
Design and method: 458 insulin-naïve adults with type 2 diabetes (mean age: 56 yrs, diabetes duration: 7.7 yrs, HbA1C 8.9%) were randomized (1:1) to once-daily IDeg or Sita (100 mg orally) in addition to 1-2 OADs.
Results: The completion rate was 76% in both treatment arms. IDeg was superior to Sita in improving HbA1C; (estimated treatment difference [ETD] IDeg-Sita: -0.43%-points, [95% CI: -0.61, -0.24; $p<0.0001$] with observed mean reductions of 1.56% vs. 1.22%-points, respectively). HbA1C<7% was achieved by 41% (IDeg) vs. 28% (Sita) of patients. IDeg was superior to Sita in reducing fasting plasma glucose (FPG) (ETD IDeg-Sita: -39.1 mg/dL [-46.8, -31.4; $p<0.0001$] with observed mean reductions of 58.0 vs. 25.1 mg/dL, respectively. Rates of nocturnal confirmed hypoglycaemia (PG <56 mg/dL occurring 00:01 to 05:59, inclusive) were not significantly different: 0.52 (IDeg) vs. 0.30 (Sita) episodes/patient-yr, estimated rate ratio (ERR): IDeg/Sita: 1.93 [0.90, 4.10; $p=0.09$]). Overall confirmed hypoglycaemia rates were higher with IDeg than with Sita (3.1 vs. 1.3 episodes/patient-yr, ERR IDeg/Sita: 3.81 [2.40, 6.05; $p<0.0001$]); one severe episode was reported with IDeg. Weight gain was greater with IDeg than Sita: ETD IDeg-Sita: 2.75 kg [1.97, 3.54; $p<0.0001$]. Adverse event rates were low for both groups.
Conclusion: IDeg was superior to Sita in improving glycaemic control; overall hypoglycaemia was higher with IDeg, but there was no difference in severe or nocturnal hypoglycaemia. IDeg is an effective and well-tolerated alternative to OADs.

P30

Insulin degludec given in a flexible once-daily dosing regimen does not compromise efficacy or safety in type 2 diabetes

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Aim: Insulin degludec (IDeg) is a new-generation, ultra-long-acting basal insulin that forms soluble multi-hexamers upon subcutaneous injection, resulting in a flat and stable glucose-lowering effect. This trial compared IDeg, dosed once-daily (OD) in a flexible regimen (IDegFlex), to insulin glargine (IGlar) and IDeg OD, both dosed at the same time each day.
Design and method: In this 26-week trial, patients with type 2 diabetes were randomized to IDegFlex (n=229) with forced dosing intervals of approximately 8-40 h, and compared to either IGlarOD (n=230) or IDegOD (n=228) both given daily, at the same time each day.
Results: At 26 weeks, the mean HbA_{1c} was 7.2% with IDegFlex, 7.3% with IDegOD and 7.1% with IGlarOD (estimated treatment difference [ETD] IDegFlex-IGlar OD: 0.04%-points [-0.12; 0.20]; confirming non-inferiority). Mean fasting plasma glucose (FPG) was significantly lower for IDegFlex (105 mg/dL) compared with IGlarOD (112 mg/dL) (ETD: -7.6mg/dl [-14.8; -0.4] *p*=0.04). Rates of confirmed hypoglycaemia (PG <56 mg/dL or severe) were similar for IDegFlex, IDegOD and IGlarOD (3.6, 3.6 and 3.5 episodes/patient-yr respectively; estimated rate ratio (ERR) IDegFlex:IGlarOD: 1.03 [0.75; 1.40], p=NS) as were rates of nocturnal confirmed hypoglycaemia (0.6, 0.6 and 0.8 episodes/patient-yr, respectively; ERR IDegFlex:IGlarOD: 0.77 [0.44; 1.35], *p*=NS). Rates of adverse events and mean daily insulin doses were similar between groups.
Conclusion: Extreme dosing intervals of 8-40 h for IDeg resulted in similar glycaemic control, rates of hypoglycaemia, insulin dose and weight gain compared to fixed IGlar dosing, demonstrating that the unique pharmacodynamic profile of IDeg allows substantial flexibility of administration, without compromising effectiveness or safety.

P31

Hypertension in immigrant diabetic patients

Piulats Egea N[1], Franch Nadal J[1], Goday Arno A[2], Benito Badorrey MB[1], Martínez Sierra MC[1], Mata Cases M[3], in representation of RedGDPSDiabetes Study Group
[1]Primary Healthcare Team (EAP) Raval Sud, Barcelona, Spain; [2]Endocrinology Service, Hospital del Mar, Barcelona, Spain; [3]EAP La Mina, Barcelona, Spain

Aims: To determine the prevalence of hypertension in immigrant and native diabetic patients and to evaluate the presence of differences in blood pressure values, control of traditional cardiovascular risk factors and antihypertensive treatment prescribed.
Design and methods: Multicentre, observational, cross-sectional, case-control study of diabetic patients, immigrant (n=605) and native (n=307), attended in primary care in Spain. Successive cases were recruited by order of consultation. Epidemiologic, clinical and laboratory variables were studied.
Results: Immigrant diabetic patients with diagnosis of hypertension were younger than the native ones (55.5±10,1 vs 66.9±10.1 years) p<0.001 and had suffered fewer years of diabetic disease progression (7.4±7.6 vs 11.2±8.3 years) p<0.001. The prevalence of hypertension in diabetic patients was 40.2% in immigrants and 63.2% in natives p<0.001. Immigrant diabetic patients showed higher values of diastolic blood pressure (82.6±10.7 vs 76.2±10.6mmHg) p<0.001. Statistical differences were not found in systolic blood pressure levels. Glycemic control results were worse in immigrants (glycosylated hemoglobin: 7.87±2.11 vs 7.12±1.44 %) p<0.001. Higher levels of total cholesterol were observed in the immigrant group (199.2±45.4 vs 190.4±38.6 mg/dl) p=0.03 and in LDL-cholesterol also (119.7±38.9 vs 107.2±36.2 mg/dl) p=0.001. Multi-drugtreatment of hypertension was more frequent in native than in immigrant patients (57.9 vs 43.5%) p<0.001.
Conclusions: Immigrant diabetic patients showed lower prevalence of hypertension with higher values of diastolic blood pressure. In this group, dyslipidaemia and diabetes also hadpoor control and multi-drug treatment of hypertension was less frequent.

P32

Diabetic complications and their relation to chronic kidney disease

Miravet-Jiménez S[1], *López-Simarro F*[1], *Cols-Sagarra C*[1], *Romaguera-Lliso A*[2], *Elizabeth-Riesgo N*[1], *Maya-López JA*[1]
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Aims: To calculate glomerular filtration rate (GFR) using Modification of Diet in Renal Disease (MDRD) in type 2 diabetes mellitus (T2DM) patients. To determine the correlation between a decrease in GFR and the presence of macrovascular complications. To assess whether there is a relation between chronic kidney disease (CKD) and the presence of diabetic retinopathy (DR).

Design and methods:

–Descriptive cross-sectional study.

–Site: urban municipality (26,460inhabitants). Subjects: 297 T2DM patients, treated in primary care, obtained by stratification of diabetic patients of each medical quota.

–Measurements: demographic variables (age, gender), presence of albuminuria (ratio alb/creat), stages calculated by MDRD GFR and existence of macrovascular complications.

–Statistical analysis: qualitative variables (chi square, proportions), quantitative variables (mean and standard deviation). IC95%.

Results: Age: 67.64 (SD:10.6). Range: 37-92.52.5%males. Albumin / creatinine ratio was only registered in 59.9% of patients (Table 1).

Table 1

Albuminuria stage	mg/dL	n (%)
A1	<29.99	169 (94.9)
A2	30-299.99	8 (4.5)
A3	>300	1 (0.6)

Macrovascular complications were present in 32.32% of patients (Table 2) with no relation to GFR stages.

Table 2

GFR stage	Range (mL/min per 1.73m$^{2)}$	N (%)	% Macrovascular complications
G1	≥90	135 (45.5)	20
G2	60-89.99	119 (40.1)	41
G3a	45-59.99	31 (10.4)	38.7
G3b	30-44.99	8 (2.7)	75
G4	15-29.99	2 (0.7)	50
G5	<15	2 (0.7)	50

DR screening was performedon 84.85% of patients and was positive in 22.6% of them. Patients with CKD had more statistically significant DR (Table 3).

Table 3

Range(mL/min per 1.73m^2)	DR (57) N (%)	No DR (195) N (%)	Chi square p=0.002
≥60	42 (73.7%)	177 (90.8%)	
<60	15 (26.3%)	18 (9.2%)	

Conclusions: High clinical inertia in the screening of albuminuria. There is no relation between GFR and the presence of macrovascular complications (contrary to our expectations). Patients with CKD have a significantly higher frequency of DR.

P33

Oral treatment in diabetic patients with chronic renal disease in an urban primary centre

De Pedro Pijoan AM
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Introduction: There are several known recommendations for hypoglycaemic treatment in diabetic patients with chronic renal disease (CRD) as we have different guidelines to follow. It is known that the sulfonylurea glipizide is recommended in patients with CRD. We have to be aware ofits side effects, like hypoglycaemia, with glipizide.
Aims: To determine the prevalence of type 2 diabetes in patients registered with CRD who are receiving oral treatment. The second aim is to describe hypoglycaemic treatment in diabetic patients with chronic kidney disease.
Design and methods: Cross-sectional study of a random sample of diabetic patients with renal blood filled who were assigned to and visited our primary care centre in 2010. Inclusion criteria: Subjects> 15 years with diabetes and chronic kidney disease (glomerular filtration rate (GFR) <60ml/min). Exclusion criteria: terminal illness, pregnancy, with no test results and exitus. The following variables were considered: age, sex, body mass index (BMI), CRD diagnosis, diagnosis of diabetes, hypoglycaemic treatment, diagnosis of hypertension and dyslipidaemia. Evaluation indicators were calculated following international standards.
Results: 16,770 patients visited, 1,396 of them with diabetes and 189 diagnosed with chronic renal disease. 50% were women and the mean age was 79.5 (8.7). Patients studied had a 12.5% glomerular filtrationrate (GFR) between 60-89, 70.8% between 30-59, 16% between 15-29 and 0.7% a GFR of less than 15. Of 144 patients, 110 (76.4%) had had hypoglycaemic therapy; metformin (38%), insulin (26%), sulfonylureas (18%), glinides (10%), glitazones (3%), glucosidase inhibitors (2%), DPP4 inhibitors, (1%) and 34 (23.6%) without.
Conclusions: In this study we tried to identify diabetic patients treated with sulfonylurea who could perhaps benefit from alternative therapies in order to preserve renal function. As the numbers show, we have a low prevalence of CRD. We expect our diabetic patients will have to be monitored, as they have a high risk of complications of diabetes. We must be aware of our recipes for our patients' safety.

P34

A clinical performance audit on the management of type 2 diabetes mellitus in two public primary care clinics in Malaysia

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Aims: To assess the quality of care of type 2 diabetes mellitus (T2DM) management in two public primary care clinics and measure the performance criteria based on current evidence against standards.
Methods: This audit study was conducted in Taman Ehsan Health Clinic (KKTE) and Sungai Buloh Health Clinic (KKSB) in Selangor, Malaysia from 7th May until 28th June 2012. From the problems identified, five structures, 20 processes and 14 outcome criteria were set based on the Chronic Care Model, WHO Innovative Care for Chronic Conditions (ICCC) Framework and Malaysian clinical practice guidelines (CPG) on the management of diabetes 2009 and the result of the audit was compared to the standard of practice guidelines. Medical records of T2DM patients on pharmacological treatment who have been followed-up at least twice in the last year were identified and retrieved at random by convenient sampling, with a total of 500 medical records. Patients with other types of diabetes were excluded.
Results: 58.6% of the patients were female. The mean age and mean duration of diabetes was 61.31 years and 6.47 years respectively at the KKTE and 56.84 years and 5.46 years respectively at the KKSB. Both primary health clinics successfully achieved all five standard structures. Both clinics also achieved three out of 13 process criteria where 60.4% family history of premature CVD has been recorded at least once since diagnosis, 67% of smoking status has been recorded at least once in the last year and 80% of foot examination has been performed at least once in the last year. However, outcome and management criteria for both clinics were not met.
Conclusion: Management of T2DM patients in both primary care settings had only achieved the target standard in eight out of 35 criteria. Therefore, a good strategy and continuous effort should be made to achieve a good clinical outcome.

P35

Effect of the use of the method of case management on glycated haemoglobin of adults with type 2 diabetes mellitus. RBR-6twwh2

Moreira R, Mantovani M
Federal University of Paraná, Brazil

Aims: To evaluate the effect of using of the method of case management on glycated haemoglobin (HbA1c) in adults with type 2 diabetes mellitus. The test hypothesis is that the use of the method of case management influences the mean HbA1c.
Methods: Clinical research, developed in the city of Bandeirantes, Paraná, Brazil, between June 2011 and July 2012. Obtained approval by the Research Ethics Committee of the Sector of Health Sciences of the Federal University of Paraná (CAAE 0043.0.091.091-11). The target audience included 979 adults with type 2 diabetes mellitus enrolled in primary health care. We calculated a sample size of 80 individuals, with a significance level of 0.05 and power of the test 0.20. 40 subjects were allocated to the intervention group and 40 to the comparison group. Sampling was by volunteering. The intervention group was accompanied by the method of case management, which included monthly phone calls, monthly home visits, quarterly nursing visits and group meetings every two months. HbA1c was measured at baseline, after 6 and 12 months. The paired-samples t-test, $p \leq 0.05$ was used.
Results: This is a preliminary evaluation of the first six months of study. 65% were female and 73.8% were married. The average age of participants was 50 ± 7 years, 5.27 ± 4.39 years of education. The time to disease progression was 7.6 ± 6.71 years. Oral antidiabetics were the most prevalent drug treatment, with 61.3%, 17.5% insulin associated with oral antidiabetics and 8.8% insulin. 84% had a body mass index above 25 kg/m2. The average HbA1c in the intervention group at baseline was 10.29% and after 6 months was reduced to 9.18%, 1.02% reduction ($p<0.001$). In the comparison group, baseline HbA1c was 9.5% *versus* 9.02% after 6 months, a reduction of 0.6% ($p<0.027$).
Conclusions: the test hypothesis was accepted. A statistically significant reduction in HbA1c was greater in the intervention group.

P36

Glycaemic control in Brazilian adults with type 2 diabetes so that they could take part in a randomized clinical trial

Moreira R, Mantovani M
Federal University of Paraná, Brazil

Aim: To find out the glycaemic profile of adults with type 2 diabetes so that they could take part in a randomized clinical trial.
Methods: Clinical research, developed in the city of Bandeirantes, Paraná, Brazil, between June 2011 and July 2012. Obtained approval by the Research Ethics Committee of the Sector of Health Sciences of the Federal University of Paraná (CAAE 0043.0.091.091-11). The target audience included 979 adults with type 2 diabetes mellitus enrolled in Primary Health Care. We calculated a sample size of 80 individuals. Sampling was by volunteering. The results were processed using Microsoft Excel® 2003. We calculated a confidence interval of 95%.
Results: Of 80 individuals, 65% were female, 73.8% were married. The average age of participants was 50 ± 7 years, three children ± 2, 5.27 ± 4.39 years of education and a *per capita* income of $159.59 ± 102.76. The time to disease progression was 7.6 ± 6.71 years. Oral antidiabetics were the most prevalent drug treatment, with 61.3%, 17.5% insulin associated with oral antidiabetics and 8.8% insulin. 84% had a body mass index above 25 kg/m2. Glycaemic control was assessed by the outcome of plasma glucose below 110 mg/dL and glycated haemoglobin (HbA1c) below 7%, as proposed by the Latin American Association of Diabetes. It was observed that 10.00% (95% CI: 3.4%, 16.6%) of participants had plasma glucose controlled and 11.25% (95% CI: 4.3%, 18.2%) HbA1c controlled. The percentage of people with type 2 diabetes who had HbA1c above 7% was high, totalling 88.75%.
Conclusions: The proportion of people who had glycaemic control was low. Knowing that hyperglycaemia is the main condition involved in the occurrence of diabetes complications, reorganization measures of health care based on the model of care for chronic conditions should be implemented to reverse this profile.

P37

The improvement of diabetes prevention by primary care in Ukraine

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National Medical Academy of Postgraduate Education named after P.L. Shupyk, Ukraine, Kiev

Aims: The prevalence and morbidity of diabetes mellitus in the world is growing every year. Until the past few years, diabetes care in Ukraine was conducted by endocrinologists and the growing amount of patients made it impossible to carry out preventive measures effectively. The aim of our research was to analyse the efficiency of diabetic care and prevention during the last decade in Ukraine.
Materials and method: The logical statistical analysis of the prevalence of diabetes during 2002-2011 was conducted according to the official statistics of the Centre of Medical Statistics of the Health Ministry of Ukraine. The efficacy of preventive measures was analysed by interviewing 136 patients with diabetes, aged 62.9±3.8 years (65% women and 35% men), and 72 city dwellers and 64 rural inhabitants before their diabetes. We used the modified questionnaire to estimate the diabetes risk factors, offered by ADA. The questions about the knowledge of diabetes, the possibility and use of preventive measures before diabetes were added.
Results: Prevalence of diabetes mellitus among the adult population of Ukraine in 2011 folded 3 342,4 on 100 000 population, and increased 1.47 times over the last few years. Thus, among the urban adult population of Ukraine, diabetes prevalence was 3,579.6 out of a population of 100,000, and 2,808.5 out of a rural population of 100,000. Prevalence of diabetes in the Kiev region in 2011 was 3,243.1 out of a population of 100,000 (urban -3,375.1 out of a population of 100,000; rural - 3,038.3 out of a population of 100,000. The questioning of patients showed that the rural population had more frequent non-controlled risk factors of diabetes in comparison to city dwellers. The patients did not see the connection between their diabetes and risk factors, and did not understand the necessity of using of preventive measures and had a low level of knowledge about diabetes. Even after diabetes had manifested itself, people did not change their lifestyle, physical activity and badly adhered to the diet, leading to abnormal levels of HbA1.
Conclusions: In view of the considerable growth in diabetes morbidity, which is a heavy burden on endocrinologists, effective prevention can be carried out by general practitioners whom we are trying to instil with the principles of family medicine, following the reform of the Ukrainian health system. The Ukrainian national medical standards and guidelines are preparing for diabetes management in general practice.

P38

Looking at the diabetic foot

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Aims: In Portugal, the prevalence of diabetes mellitus (DM) in 2010 was 12.4%. About a quarter of these patients have conditions predisposed to foot injuries. Ulceration and amputation are common causes of morbidity. Diabetic foot is therefore assumed as one of the most serious and costly consequences of DM. However, diabetic foot complications can be prevented by implementing appropriate care strategies such as systematic screening, which can reduce amputation by 85%. The objective of our study was to characterize patients who attended to the diabetic foot consultation (DFC) at our health unit and study the possible associations between risk categories and the variables considered.
Methods: Cross-sectional study of the population of DFC users in 2011. Information related to the examination of the foot and classification of risk was taken in consultation with other information obtained from the individual process. The association between the various clinical parameters and the category of ulceration risk was assessed using SPSS 20.0.
Results: The population consisted of 203 patients, with an average age of 64.2 years, 53.2% of them were female. The mean duration of the disease was 8.3 years; 99% had type 2 diabetes, with an average haemoglobin A1c of 7%. 87.6% were taking oral antidiabetics. About halfhad medium risk feet. From the analysis of the association between risk categories and variables (gender, age, type and year evolution of DM, mean haemoglobin A1c, micro albuminuria, hypertension, BMI and smoking) association was only statistically significant with patient's age ($p < 0.004$).
Conclusion: 79.3% of patients had medium or high risk feet and an association between the risk of ulceration and age of the patient was observed. Given these data, it is essential to act in an organized and systematic manner, through consultations of diabetic foot where early detection of feet at risk, as well as the education of this population, can be ensured more effectively.

P39

Recommended self monitoring of blood glucose, better metabolic control with different monitoring intervals?

Martínez Laguna D[1], *Morró i Pla J*[2], *Martín-Urda Rodrigo S*[3], *Mata Cases M*[4], *Cos Claramunt X*[1], *Carrera Font T*[5]
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Aims: To assess if recommended self-monitoring blood glucose (SMBG) is associated with better glucose control compared with other monitoring intervals.
Methods: In this prospective cohort study, type 2 diabetic patients, who were followed up in five urban primary care centres, were assessed for: SMBG frequency, type 2 diabetes (T2D) treatments and HbA1c level, at baseline and after 1 year. The primary outcome was a difference in baseline HbA1c and after one year in the groups with and without SBGM (adjusted for initial metabolic control and DM treatment).
Results: 2,056 patients were included. The mean age was 70.51 (SD10.59), 8.53 (SD6.64) years from diagnosis of T2D. Mean basal and one year HbA1c were 7.41% (SD1.46) and 7.37% (SD1.36), respectively. The SBGM patients on recommended frequency had a higher HbA1c decrease at one year but without statistical significance compared to the ones with higher (p=0.335) or lower (p=0.474) monitoring frequency. The insulin-treated patients with recommended SMBG frequency had a higher HbA1c compared to those who tested more often (p=0.016). Compared with their counterparts administering SBGM in the recommended frequency, patients taking secretagogues who tested more often than recommended, had significantly improved glycaemia (p=0.031). In patients with HbA1c>8% and in insulin-treated patients under recommended SMBG frequency, glycaemia significantly improved compared to patients who tested more frequently (p=0.012).
Conclusions: The majority of patients enrolled in this cohort study were under poor metabolic control (mean HbA1c ≥7%). Metabolic control improved in patients with higher SMBG frequency. A higher SMBG frequency in insulin patients was associated with better metabolic control.

P40

Patients likelierto reach A1c target during 26 weeks' treatment with liraglutide compared with sitagliptin or exenatide

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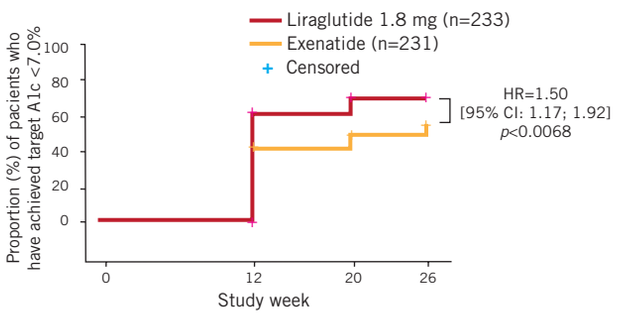
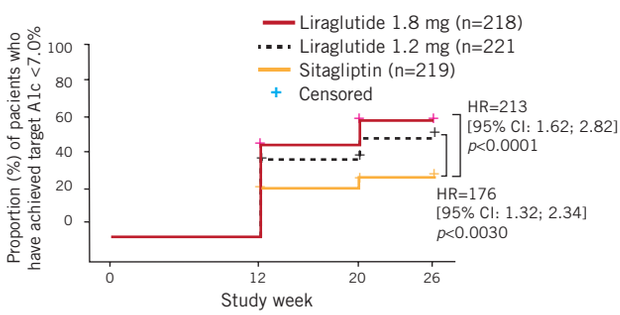
Aims: Rapid attainment of target A1c levels improves adherence to therapy in patients with T2D.This post-hoc analysis covered target A1c attainment during two phase 3b trials (NCT00518882, NCT00700817).
Methods: Patient proportions reaching target A1c <7.0% at 12, 20 and 26 weekswere analyzed for two clinical trials in patients with T2D: liraglutideODvs. exenatide BID (LEAD-6) and liraglutide vs. sitagliptin (LIRA-DPP-4). The "time to A1c target" was analysed by a Cox proportional hazards model, with treatment and previous OAD treatment as fixed effects; baseline A1c as covariate.
Results: In both trials, patient proportionsreaching target for their first time was higher with liraglutide respectively at each time point. In LEAD-6, patient proportions reaching target overall was greater for liraglutide 1.8 mg compared with exenatide.
Conclusions: Timely achievement of target A1c level is more likely with liraglutide compared with sitagliptin or exenatide BID.





Industry partners and exhibition area

Industry partners

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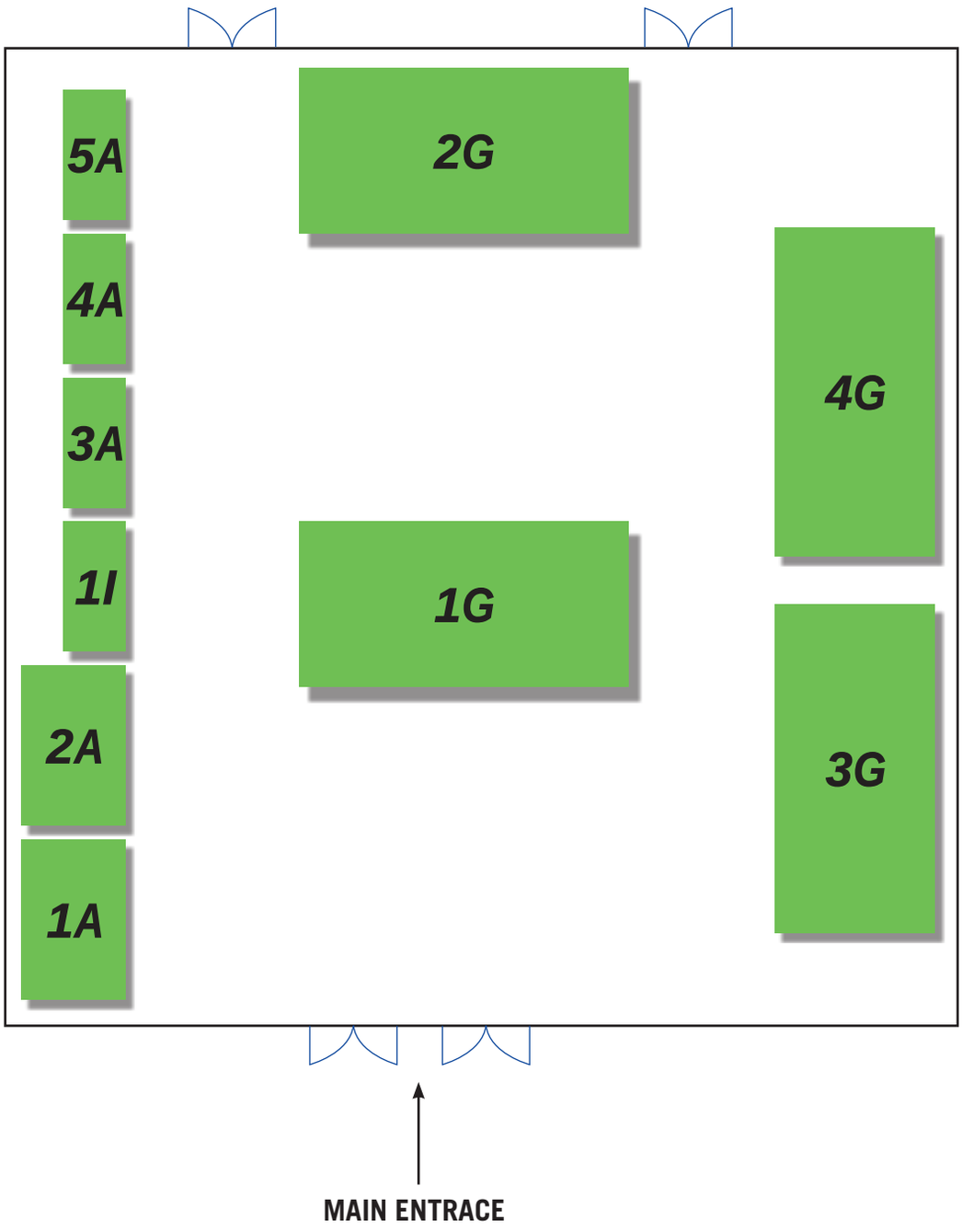
Exhibition area

- **Exhibition hall:** MR 11 (Hotel Barceló Sants - 1st floor)
- **Opening hours:**
  Friday, 26 October: 09.00 - 15.30
  Saturday, 27 October: 09.00 - 13.30



Supporting organizations

European Association for the Study of Diabetes

World Organization of Family Doctors

Foundation of European Nurses in Diabetes

International Diabetes Federation Europe

European Primary Care Cardiovascular Society

European General Practice Research Network

EURADIA Alliance for European Diabetes Research

Primary Care Diabetes Society

Spanish Society of Internal Medicine

Spanish Society of Primary Care Doctors

Spanish Society of Family and Community Medicine

Catalan Diabetes Association

Network of Diabetes Study Group in Primary Health Care

Catalonian Primary Care Society

Primary Health Care Diabetes Study Group

Jordi Gol Primary Care Research Institute

Diabetes Education Study Group of EASD

Turkish Association of Family Physicians

Turkish Family Medicine Foundation

Conference venue

Venue: Barceló Sants Hotel 4*

The **Barceló Sants Hotel****** is situated above Sants Station. It has **direct access to the AVE** (high speed train), to the metro lines and regional and local trains (RENFE). Direct connection to Barcelona International Airport. The hotel's unrivalled location permits guests **easy access to the city of Barcelona** and also to the surrounding area.

It is also the ideal hotel for business trips due to its direct connection with the **airport**, the **20 event and conference** rooms that can accommodate up to 1,500 people, its closeness to both the **Barcelona Trade Fair Congress Centre and Montjuïch mountain**. It also boasts 200 parking spaces, free Wi-Fi service, and shops that are directly accessible from the hall using the lift.

There are also **377 spacious, comfortable** guest rooms (14 of which are junior suites), **with Wi-Fi connection**.

Another of the hotel's attractions is its excellent gastronomic offering at **El Bistrot de Sants** and its Mediterranean buffet restaurant **La Cantina**.

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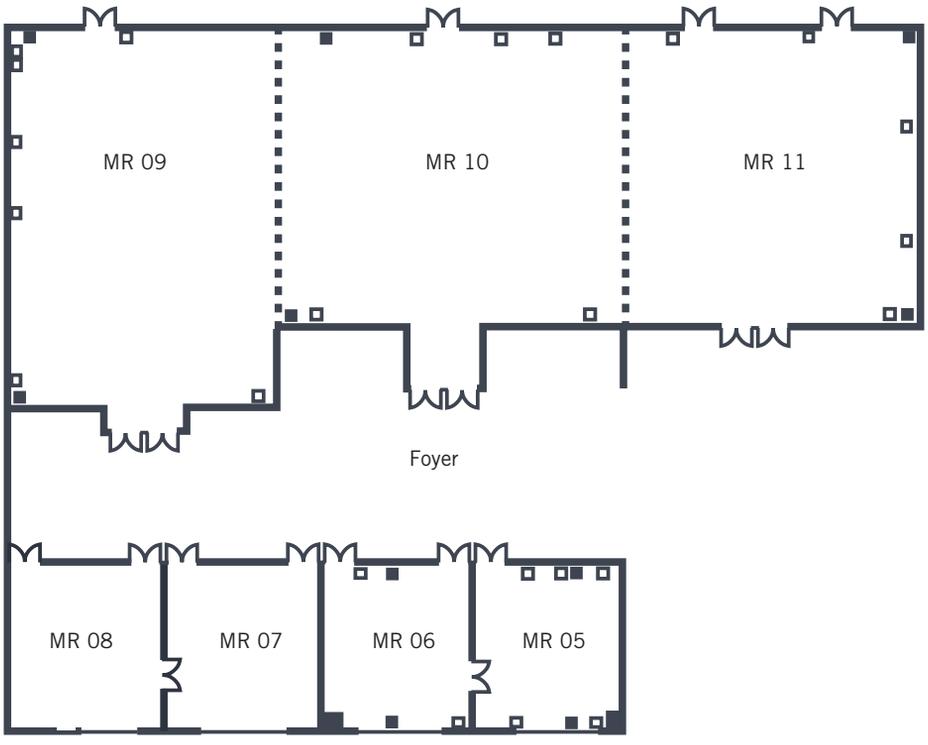
First floor



Plenary:	*MR 09 + MR 10*
Exhibition area:	*MR 11*
Workshop rooms:	*MR 05 + MR 06*
	MR 07 + MR 08
Poster area:	*Foyer*
Coffee break and lunch area:	*MR 11 + Foyer*

About Barcelona

Located in a privileged position on the north-eastern coast of the Iberian Peninsula and the shores of the Mediterranean, Barcelona is the second largest city in Spain in both size and population. It is also the capital of Catalonia, 1 of the 17 Autonomous Communities that make up Spain.

The capital of Catalonia is unequivocally a Mediterranean city, not only because of its geographic location but also, and above all, because of its history, tradition and cultural influences. The documented history of the city dates back to the founding of a Roman colony on its soil in the second century B.C.

Modern Barcelona experienced spectacular growth and economic revival at the onset of industrialization during the second half of the 19th century. The 1888 World's Fair became a symbol of the city's capacity for hard work and its international outlook. Culture and the arts flourish in Barcelona and throughout Catalonia; the splendour achieved by Catalonian's home-grown art nouveau, *modernisme*, is one of the clearest examples.

Barcelona, more than just a single city, is really a collection of multi-faceted and diverse cities offering the best of European culture throughout the ages in one place. Neatly matching the ancient with the ultra modern, Barcelona truly stands out as the jewel of the Mediterranean.

Airport

Barcelona International Airport (also known as Aeroport de Barcelona-El Prat) is situated 13 km south west of the city centre.

Train (RENFE)

The train service between the airport and the city centre (Passeig de Gràcia) runs from 06:00 to 22:30 (to Barcelona) and from 5:20 to 22:50 (to the airport). There is one train every 30 minutes and the travel time is 25 minutes.

Approximate cost: € 2.40.

Express Bus (Aerobús)

The bus service between the airport and the city centre (Plaça Catalunya) runs from 06:00 to 01:00 on working days and from 6:30 to 1:00 at weekends (to Barcelona), and from 5:30 to 00:15 on working days and from 6:00 to 00:30 at weekends (to the airport). There is one bus every 8 minutes and the travel time is 30 minutes.

Approximate cost: € 5.75 (one way)
€ 9.95 (round trip)

Taxi

The journey to the Barceló Sants Hotel takes about 20 minutes. Rates change according to the time of day.
Night time rates: working days from 21:00 to 7:00 and weekends and bank holidays from 00:00 to 24:00.
Daytime rates: from 07:00 to 21:00.

Approximate cost: € 25. (There is an additional cost for entry /exit from the airport and for carrying luggage.)

Index of speakers and abstract authors

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