



Diabetes: The unmet needs - Key priorities for European Diabetes Research

EU Diabetes Working Group, supported by the European Coalition for Diabetes

3 February 2016, European Parliament, Strasbourg, France

On 3 February 2016 the EU Diabetes Working Group of MEPs met in the European Parliament, Strasbourg to discuss how the EU Institutions can work with diabetes researchers to address *The Unmet Needs in Diabetes*. The meeting was organised by the European Coalition for Diabetes and the theme addressing research priorities was led by EURADIA.

Christel Schaldemose, MEP opened the event and noted



Christel Schaldemose MEP, Michael Stumvoll, EURADIA; Commissioner Carlos Moedas; Chris Delicata, ECD

that we still need to know more about this huge challenge, and that we need to improve quality of life for people with diabetes. At the same time, she acknowledged

that health systems are

under enormous pressure. **Research and innovation are part of the solution.**

Chris Delicata, Chair European Coalition for Diabetes

noted that “committed advocacy by EUDWG” had resulted in the 14 March 2012 adoption of the “Resolution on Addressing the EU Diabetes Epidemic calling on the Commission and Member States to develop and implement a targeted EU Diabetes Strategy in the form of an EU Council Recommendation on diabetes prevention, diagnosis, management, education and research.”

Today’s message is that research is key to tackling the diabetes epidemic. The IDF atlas showed that in 2015 one in 11 adults has diabetes and this is set to get worse by 2040 when it will be 1 in 10. Why should we support diabetes when there were so many other diseases? In a slide Mr Delicata showed that in 2013 0.6 million people died from malaria, which sharply contrasted with 5.0 million who died from diabetes worldwide (every 6 seconds a person dies from diabetes). There was still a need to develop and implement a targeted EU Diabetes Strategy, in the form of an EU Council Recommendation

on areas including diabetes research and to ensure continued support for diabetes funding under the current and future EU Programmes for Research.

Michael Stumvoll, Chair EURADIA, Alliance for European Diabetes Research.

The Alliance comprises who is who in diabetes, NGOs, and healthcare companies active in diabetes research. EURADIA provides the voice for research within the ECD. Prof Stumvoll asked: “*Why do we need more research?*” He indicated previous successes in research; insulins, injection devices, and the thousands of research papers published, “*So, why spend more money?*” He illustrated this point with a screen full of images of diabetic feet. Successful research in the following fields could have prevented these complications: if there had been significant advances in cell/tissue engineering there would be *tissue replacement*; advances in vascular/stent research would have developed *durable revascularization*; pharmacology research would



Michael Stumvoll, Chair of EURADIA

give us ‘*smart insulin*’; advances in material science would mean the development of a *foot pressure detection device* (in a shoe or sock); public health research could provide data to support

effective prevention programmes, and there were many other examples. Prof Stumvoll reminded the audience that “***The issue is not about money alone. What is needed is recognition that diabetes is different. It is a ‘disease space’ rather than one single disease.***”

Diabetes gives rise to many broad medical problems from the newborn to the elderly; it is a risk disease for other diseases: cardiovascular, renal disease, cancer, dementia, even dental problems. It needs a multidisciplinary approach that requires coordination, and the EU can help by promoting research at all levels and by supporting the DIAMAP European Diabetes Research Roadmap, which

EURADIA started 10 years ago. The Roadmap identifies research goals across all fields of diabetes and can help identify new areas of research and obstacles to research.

Carlos Moedas, European Commissioner for Research, Science and Innovation commented on how hard it had been to look at the pictures shown by Prof Stumvoll. He noted that today the EU faces three problems in diabetes: the numbers - *alarming increase in diabetes in Europe and worldwide*; a *lack of awareness surrounding diabetes prevention*, and common complications; a *lack of patient-empowering treatments that reduce the burden of diabetes management*.



Carlos Moedas, Commissioner for Research, Science and Innovation

But he said there is good news on the horizon. New combinations of diabetes research with digital technologies are leading to opportunities for treatments and personalised medicine, which will play an increasingly important role in the fight against diabetes. He wanted Europe to lead the way. Here is why: personalised medicine *puts the patient at the centre of healthcare decisions, by tailoring treatments to their individual needs*. To make personalised medicine a reality the EU is supporting various projects. In particular the IMI Diabetes Platform, along with other projects.

“A great deal of research is still needed as diabetes continues to increase worldwide.” The Commissioner mentioned the EU wants to have a greater impact on diabetes through international initiatives such as the Global Alliance for Chronic Diseases (GACD), to better understand *“the link between socio-economic influences and higher risks of diabetes, so that we can develop more holistic approaches to diabetes prevention and so that personalised medicine and digital health technologies are made more effective by sound political decisions and awareness-raising campaigns.”*

Commissioner Moedas congratulated the work of the EU Diabetes Working Group *“for its efforts in the fight against the diabetes”* – he emphasised the word *“disease space”* as coined by Prof Stumvoll. *“The achievements of this group ... are both very impressive and increasingly important.”* The Commission and Horizon 2020 will, of course, continue to support diabetes research and innovation.

He said that the presentations and discussions today were motivating and that he hoped that work would be done by communication with other stakeholders. Commissioner Moedas encouraged participants *to get more people involved and next year he would come back to discuss what had changed for people in the ‘diabetes space’*.

Stefano Del Prato, Chair European Foundation for the Study of Diabetes explained that increasing prevalence means an increasing expenditure. Prevention could reduce the prevalence, which required a major research effort to identify high-risk groups and find the opportunities for intervention. **Diabetes is common, growing, deadly and costly.** Around 10% of health care budgets are spent on diabetes and it contributes to the economic crisis. We need to take action with even more research. Now is a critical time for competition, to find solutions. Prof Del Prato gave an overview of the unmet needs.



Stefano Del Prato, Chair of EFSD

Type 1 diabetes: a tiny organelle (the islets in the pancreas) is able to produce sufficient insulin to keep a perfect glucose balance. In type 1 diabetes the islets are destroyed by an autoimmune process. The aim of research is to restore the insulin, or restore the structure of the islets; what is important is that the islets and the beta cells sense the glucose and respond to the glucose with a proper amount of insulin. This can be done in different ways, e.g. the artificial pancreas - but we need to come up with something very intelligent, to transfer the intelligence from a cumbersome system and also develop a smart insulin. Smart insulin is not just injected and stays in the liver, but adapts to the glucose concentration in the system. There are biological solutions, such as beta cell and pancreas transplants, but more work is needed.

Ultimately we are trying to prevent type 1 diabetes by vaccination: current understanding of destruction of the beta cells - genetic predisposition; and a factor such as a virus means that we could induce tolerance to the viruses so that diabetes can be prevented. Other targets are also being considered, which would mean fewer young people developing the disease.

Type 2 diabetes is associated with modern society. Obesity *per se* is a major player, but we need to understand that it is a complex pathogenetic condition. Type 2 diabetes is an array of different mechanisms – the beta cell is still there but does not work properly at the level of the target tissue. There are many areas of research such as: waking up dormant cells and repopulating the islets with functioning beta cells, and the role that may be played by the incretins secreted by the gut. Incretins may play a role at the level of the islet, but may also have an effect on the central nervous system. This may also help to improve function of the brain, as diabetes is related to cognitive dysfunction and Alzheimer. The gut itself is another area of research; in the gut there is a vast population of bacteria – the microbiome – which has a role of its own.

Diabetes is a very complex condition and there are many potential targets. But what is the best treatment for an individual: *precision medicine*. President Obama himself launched the precision medicine initiative – he identified two major conditions to test the hypothesis: cancer and diabetes. However, precision medicine requires even larger investment in research. It is based on genome sequencing: how we are made in terms of the genes that characterise each of us; also on metabolomics; microbiome composition; and data – especially population data. The EFSD is also considering this kind of approach and has launched a call for tenders for ‘*Patient centred treatment to support a holistic approach towards type 2 diabetes*’, involving stakeholders, electronic registries, algorithms, novel organisation models. Prof Del Prato concluded, “*Research should go from very basic to the organisation of treatment and management of diabetes, and we need to work together to do this*”.

Olivier Arnaud, European Director of Research for JDRF spoke about JDRF-funded work at the Massachusetts Institute of Technology, which showed that encapsulated human islets (insulin-producing) cells transplanted into mice can withstand the autoimmune attack in type 1 diabetes, effectively halting the condition for up to six months.

Anne Felton, President of Foundation of European Nurses in Diabetes noted that scientists devoted their lives to patients and their families and we need to acknowledge this - there is not a competition between patient and doctor and other health care professionals.

Discussion focussed upon innovative treatments such as the insulin pump and how difficult it was for some people in Europe to obtain this treatment within their health system. Costs of the complications were also discussed again and a massive joint effort is needed by all stakeholders to better the lives of people with diabetes.

Therese Comodini Cachia, MEP concluded the meeting and noted that people come to the EU for funds, which is good, but as a group of Member States we should be highlighting the importance of funding and innovation. The EU is the big investor – but through other EU channels and the work of MEPs, we should ask the Member States to finance good projects. The Commissioner reassured participants that diabetes is on the agenda of the Commission – not only by identifying initiatives – but also by showing he is sensitive to the issue. Now we need to sensitise our own colleagues, and also national parliaments and governments as that is where funding should also be matched. Activists, researchers and policy makers need to work together to bridge the gap between the present and what we would like to see in the future.



Members of the EUDWG and ECD with Commissioner Moedas. From left to right: Anne Felton FEND; Christel Schaldemose MEP, Michael Stumvoll EURADIA; Commissioner Carlos Moedas, Chris Delicata Chair European Coalition for Diabetes, Therese Comodini Cachia MEP, Sehnaz Karadeniz IDF Europe

Commissioner Moedas speech can be found at:
http://ec.europa.eu/commission/2014-2019/moedas/announcements/tackling-unmet-needs-diabetes-0_en

See www.ECdiabetes.eu for all other presentations

List of Participants

Participant	Organisation
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Azaïs, Boris	MSD France
Bogdan, Wentá	MEP, European People's Party (EPP)
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