Congress Interviews

This collection of interviews is a rousing look into the education, career, and goals of three inspiring females in field of diabetes. Prof Chantal Mathieu, Ms Beatriz Merino Antolín, and Prof Rodica Pop-Busui spoke to EMJ about their roles at the European Association for the Study of Diabetes (EASD) and how their work has been affected by the coronavirus (COVID-19).

Prof Chantal Mathieu

Professor of Medicine, Katholieke Universiteit; Chair of Endocrinology, University Hospital Gasthuisberg; Vice President of EASD, Leuven, Belgium

Q1 What led you to pursue a career in diabetes and endocrinology? And then focus your research on diabetes care, the effect of vitamin D on the immune system and diabetes, and the β cell?

As a child, I thought I would become a nurse. I like to take care of and help people. I decided to go for medical school, and in medical school I was interested in biochemistry and physiology and so I decided to become an internist. While specialising to become an internist I met, in a very strange but true story, two young people with Type 1 diabetes mellitus (T1DM). I was intrigued by this disease; I got the taste of wanting to become an endocrinologist and, more specifically, to work with people with diabetes. The two young people I met had quite complicated T1DM and one of them died while I knew him. I made it a goal that I wanted to understand: 'What is T1DM?' I wanted to study this disease to try and prevent or arrest it.

It is because I was interested in biochemistry and physiology that I became an internist, and then I became an endocrinologist mainly because of the profile of people with T1DM. That is also why I started to do my PhD thesis on immune

interventions in animal models of T1DM. I have a laboratory that is now run with two very experienced laboratory managers; [they] work with me and we do a lot of research on immune interventions in T1DM.

I also have the advantage of being a clinician and a basic researcher. This means that I can do research *in vitro* and also translate this research for people living with T1DM or at risk of T1DM. It is really every researcher's dream to be able to bridge from the laboratory to the patient. And [my interest in] vitamin D is a very strange story because the professor of endocrinology who accepted me to train for endocrinology is one of the leaders in vitamin D, bone, and calcium. In the 1980s, we had one of the first discoveries in receptors for vitamin D on immune cells. We, and then others, showed that immune cells can activate vitamin D. I used vitamin D as an immune modulator in models of T1DM, and so we studied the effects of vitamin D as an immune modulator in T1DM. I got into vitamin D through calcium, but I was never interested in calcium or bones. I was interested in T1DM and the immune system.

Q2 In 2013, your scientific merit was recognised with the InBev-Baillet Latour Prize for Clinical Research. Could you tell me a bit about the work you carried out when you were given this prestigious award?

This award, which is indeed a prestigious award here in Belgium, was given to me especially because of this 'bridging'. We did clinical research on T1DM *in vitro* and then in mice, and then were able to bridge that to humans, to do intervention trials in people at risk of T1DM and with newly diagnosed T1DM, really analysing why specific therapies worked or worked a little bit and why others didn't work. It was this translational aspect of my research where, from mice to men, the whole story was being bridged. As I said, it is really the dream of every researcher to be able to realise that. I do hope to live to see prevention or arrest of T1DM one day.

Q3 You currently have more than 350 international research publications in diabetes and endocrinology. What do you believe to be the current gaps in literature and which topics require greater attention?

I think different gaps are there when it comes to overall T1DM and Type 2 diabetes mellitus (T2DM). I also do a lot of research in T2DM, mainly clinical, and, to me, the major gaps are how to translate what we find in randomised controlled trials, what we advocate in consensus statements and in guidelines, and how to translate that to value for patients in the real world. We now have very strong evidence; for instance in T2DM, where we know that specific classes or specific agents of glucose-lowering potential have effects on the heart or the kidney and still, when we look at the real world and how much these agents are being used in the people who would be good candidates for these agents, it's only a minority. So how to translate trial findings to the real world and how do we organise our healthcare systems in such a way that this is all affordable? I think this should be a subject of research and it is not very sexy, it's not 'New England', but it's extremely relevant for day-to-day practice.

In T1DM, I believe the major gaps are still in finding who is at risk. We are getting better, and getting better, and [identifying] more precise biomarkers that can, again in a very affordable way, find people who are at high risk of getting T1DM so that we can intervene earlier than we're doing now, namely when glucose is elevated. This, to me, is an important gap. Studies are screening the whole population, but you need to screen tens of thousands of people to find a few who are at risk. That's fine for research and for publications, but it's not workable. The way I do my research, I always have a thought in the back of my head: "How can this be applied to the real world?" I believe important gaps are there in TD2M but also in T1DM; finding good and robust biomarkers will allow us to find people in such a way that we can study interventions in a cheaper and more efficacious way.

Q4 You are currently Vice President at the EASD and have chaired many sessions at the annual congresses. How important is it to continue to hold these meetings every year, even when it must be virtual?

The face-to-face meetings are still extremely important and I look forward to, hopefully next year, being able to have a face-to-face meeting for contacts and for liaising with other

researchers, other clinicians, and healthcare providers or organisers of our healthcare systems. This is extremely important; big conferences are where you meet to put together a consortium on an interesting research tool. The face-to-face meetings, to me, still have enormous value. This being said, I also believe that virtual sessions have an enormous value to bring scientific content because scientific content can be brought in as good a way in virtual setting as a face-to-face setting, whether you give your lecture to 5,000 people in a room or to a camera. It's a bit different: you don't have the stress, but you don't have the vibe. The way we do it now will be the kindergarten version of how we will do it in a couple of years. We, as researchers and clinicians, don't exploit the full possibilities of these virtual platforms. I think we could make our lectures so much more appealing with tools and interactivity and little movies. This is only the beginning. I'm a big proponent of hybrid meetings, where I hope EASD will go, and that's the direction I will push it in. Namely, to have on the one hand, face-to-face meetings with perhaps 6,000–7,000 people for those who need to be in contact and networking, and then on the other hand, have the virtual platform in parallel where you bring the research and where you allow people to discuss in fora.

I invite everybody to go to our virtual annual meeting this year because the platform we have designed with the vendour really is amazing. There will be the sessions, a big EASD plaza where people will create their avatar and will be able to walk around and, for example, visit the booth of postgraduate education, talk to people, and look at our e-learning programme. It will be quite amazing.

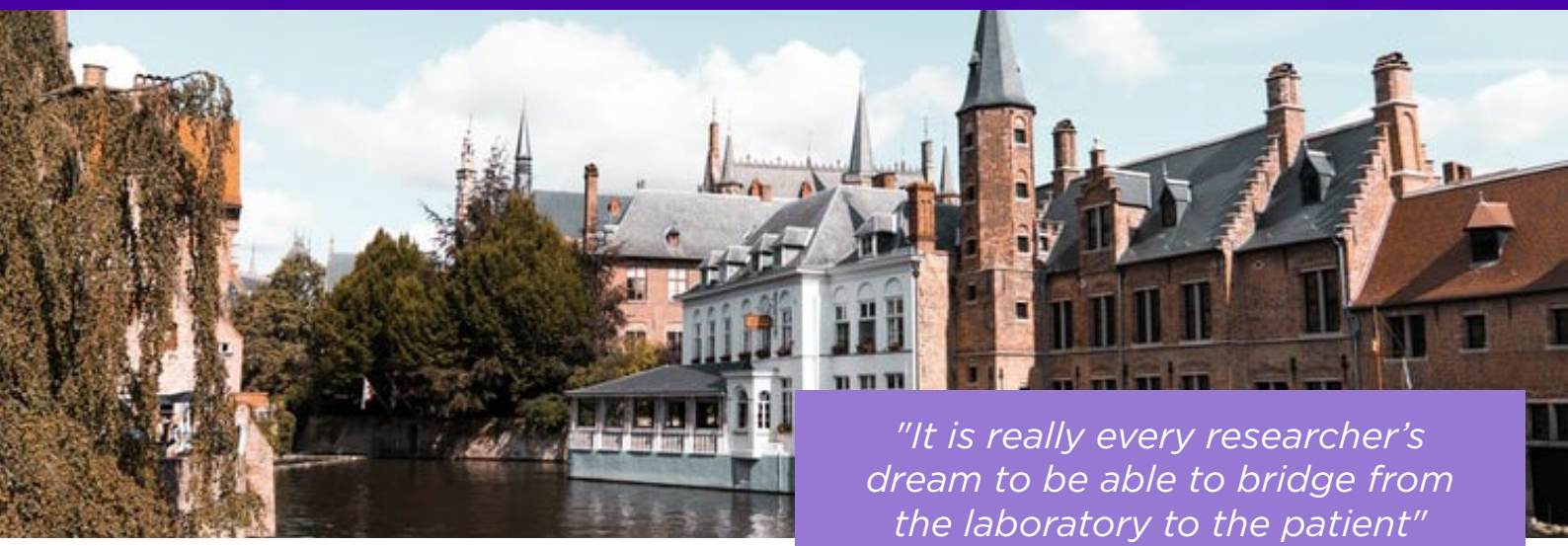
Four years ago, [EASD] launched the virtual annual meeting. Since then, EASD has had a platform where we streamed our sessions; this is open for everybody for 30 days after the annual meeting and this is free. We have had 14,000 people attending the live annual meeting. During the week of the meeting, we had another 14,000 accessing the virtual meeting. In the weeks and months after the annual meeting, we had another 60,000 people visiting our virtual platform. The reach you can have with virtual sessions is just a logarithm higher than what you can have face-to-face. We realised that we now reach the whole subcontinent of India, Africa, and South America. That's also why this year we wanted to keep our registration at a very democratic level: €70 for members and €150 for nonmembers, because we thought that we would be able to reach people for whom spending a registration fee, airfare, and a hotel is completely unreachable. We believe that we are now at a crossroads where we can become global. This is very important to us. The second thing that is also very important to us is that we do not only want to reach endocrinologists or diabetologists, but also primary care physicians, who are the ones who treat most people with T2DM.

Cardiologists and nephrologists paying €500–600 to pick a few sessions that are of interest to them is too high. Paying €150 is perhaps reachable for many cardiologists, nephrologists, or primary care physicians. I am a big believer of a hybrid formula once all of this is done; I do believe we will continue with the virtual version, absolutely, but we will also have the face-to-face.

Q5 In what ways does EASD aim to organise diabetes care, a particular area of interest of yours?

I am the chair of an initiative of EASD called the European Diabetes Forum (EUDF). EASD is not the same as the American Diabetes Association (ADA). ADA is the professional organisation where patients, educators, and specialist nurses all have a voice. EASD is about the study of diabetes. Prof Juleen Zierath, when she was president of EASD several years ago, had an idea to make a forum where everybody could come together; the researchers, EASD, patients, primary care, the companies making drugs, the companies making tools, all stakeholders in diabetes, could come together, have a voice, and advise on policy in diabetes and diabetes care. And so, when you ask, 'how does EASD see diabetes care?' it is in the realm of the EUDF.

In the EUDF, we have three big pillars where we see diabetes care going. The first pillar is the fact that we need data. In Europe, we don't have Centers for Disease Control and Prevention (CDC) like in the USA, so we have no clue on prevalence, evolution, or complications of diabetes, for example. Several countries have these registries or data but getting this on a European level would help us to organise care. We want to put effort into co-ordinating this. Second is that, as the COVID-19 epidemic has shown us, digital



"It is really every researcher's dream to be able to bridge from the laboratory to the patient"

health and novel technologies are very helpful in diabetes care. In EUDF, we also want to put emphasis on digital health, how this can help digital healthcare, and how this can help people with diabetes. We saw it with COVID-19; we had to switch to teleconsultations from Day 0, and so now we have data on how digital health has benefits in reaching patients, but also has limitations. At EASD 2020, the EUDF will have a symposium on the 24th September where we will discuss digital health as the hope for diabetes care. Thirdly, what we also want to put emphasis on in the EUDF is access to care. In different areas of Europe, access to diabetes care and prevention of diabetes is very different from area to area; having access to prevention and to care of complications is also where we in EUDF want to put a lot of emphasis. [These are] three big pillars where EASD, as one of the founding members of EUDF, will put a lot of emphasis.

Q6 As well as Vice President of EASD, you are also the Chair of Postgraduate Education. Could you please explain what this position entails, and how it contributes to the success of the organisation?

This is a project very dear to my heart. When I took over 3 years ago, we were face-to-face. All the postgraduate education efforts were in small, workshop-style, face-to-face meetings of 2–3 days in different areas of Europe. Then I introduced e-learning. We have created a whole e-learning platform, *easd-elearning.org*, where we offer free education for all those healthcare workers who work with people with diabetes. We have courses with different modules on diabetes in Ramadan, use of novel technologies, pathogenesis of T1DM, and how to apply the consensus statement to the real world. We have different courses, free and accessible from all over the world. This, for us, was very important to bring us from face-to-face to virtual. It is like what we are doing now with COVID-19 for our virtual annual meeting. We touch people working with people with diabetes in all countries of the world now; for instance, during the first COVID-19 epidemic we made little webinars on hot topics and some of them were reached by or were seen by 25,000 people. I absolutely believe in this virtual platform to reach the world. Again, the subcontinent of India, Africa, South America, but also in the USA for instance, we have a lot of people accessing e-learning.

Q7 What are the most exciting changes that have been made to the scientific programme for the EASD 2020 meeting compared to the meeting held last year in 2019?

Of course, the fact that it is virtual is a big change, but we have made the platform such that people can still create networks. For when you register, we have introduced artificial intelligence. You can choose to have specific keywords so the programme will propose an even more personalised programme than last year. Artificial intelligence has been introduced to make it even more personal; so if you attend a SGLT2-inhibitor symposium, you will get push messages saying: "Are you interested in more in-depth learning? Go to the e-learning platform." You will be able to become a member of a network of [your] choice. If you say, I am a clinician in Southwest London and I want to create an EASD meeting group with all the clinicians in the area, you can do that. We will have interesting concepts; we have discussion fora where you can have an inner circle

of those discussing and then an outer circle of those looking in, and people from the inner circle can invite people from the outer circle to join the discussion. These are all very new concepts. The avatar in the plaza can roam, you can touch people, talk to them, and give your address card. It will be a next-level virtual meeting.

As for the content, it will very much be like our previous years where we have the big prize lectures with leading researchers. We have the upcoming stars and the young investigators who are also invited. There is a lot of emphasis on our posters; we have the poster tours where we discuss poster sessions. A lot is new on the virtual side and on the technical side, but there is still the very high-level science of previous years.

It will be clever! Because we are a charity, we cannot mix the science with the industry. We have all science on the blue background of EASD, and all the industry will be on an orange background. And if you open the virtual door to the EASD plaza, the carpet will be blue; if you open the virtual door to the industry plaza, where all the industry booths are, the carpet is orange!

Q8 What is the mission hoping to be achieved by the INNODIA Project?

INNODIA is another of my pet projects and it was a unique project in that it comes from the Innovative Medicines Initiative (IMI) of the European Commission. Academic researchers are brought together with industry researchers because they want to accelerate [the process] to cure certain diseases or treatment of certain diseases. We brought together a simple consortium I was leading, called 'Name It', with our researchers in academia, together with clinical researchers. A big group of over 30 academic researchers came together with industry leaders in T1DM. Our mission was, as I said before, to find better biomarkers of T1DM. Also, true innovative clinical trial design accelerates what we know about T1DM, to come to prevention or a cure for T1DM. My big aspiration with INNODIA is to be able to find people with a risk of T1DM in an affordable and efficient way, and to be able to stop this horrible disease that is T1DM.

Q9 What have been the greatest challenges faced by diabetologists and endocrinologists during the COVID-19 pandemic? What have been your main concerns for the community?

My biggest concern is the fact that now all attention goes to COVID-19 and people forget that chronic diseases do not sleep. Diabetes doesn't sleep. Complications of diabetes continue, and what we have seen is a lot of anxiety in our patients, not daring to come to the hospital when they need help. We have seen progressed diabetic foot lesions [that we hadn't previously seen], or severe diabetic ketoacidosis. There is anxiety and fear in people whose condition doesn't sleep and who still need help. That is the negative side: the fact that all the attention goes to COVID-19 and it is like chronic diseases don't matter anymore. They still exist.

The positive is the resilience of our patients. They just get up again, and it is amazing. I'm in admiration. Another positive is the fact that we did accelerate the use of novel technologies and of digital healthcare. For example, we have an app in our hospital on smartphones where people can see their whole file, they can upload data, and we can send them questionnaires. Before COVID-19, 20% of our patients with T1DM had the app on their phone, now 80% have it because they realise it is a way of communication. It has been an accelerator. Centres and new tools have allowed us to look at glucose levels of our patients from a distance. Positives are seeing that people are so resilient, and also the boost it has given to digital health.

Q10 Where can we expect to see your focus lie in the coming years?

My focus will still be on trying to understand T1DM, trying to prevent, or arrest T1DM. My other focus will be on trying to do randomised controlled trials, but trying to translate the data we get from all these fantastic trials that have happened into the real world, and give people a handle on how to apply what we've learned in randomised controlled trials in an affordable way in the real world. I'm now in the second half of my 50s and I don't need another big publication. I really want to spend my time making a difference and bringing value to people living with diabetes. I'm getting a bit impatient with my colleagues who still want to publish: I'm a full professor, I don't need this anymore. I really want to make a difference and create value.