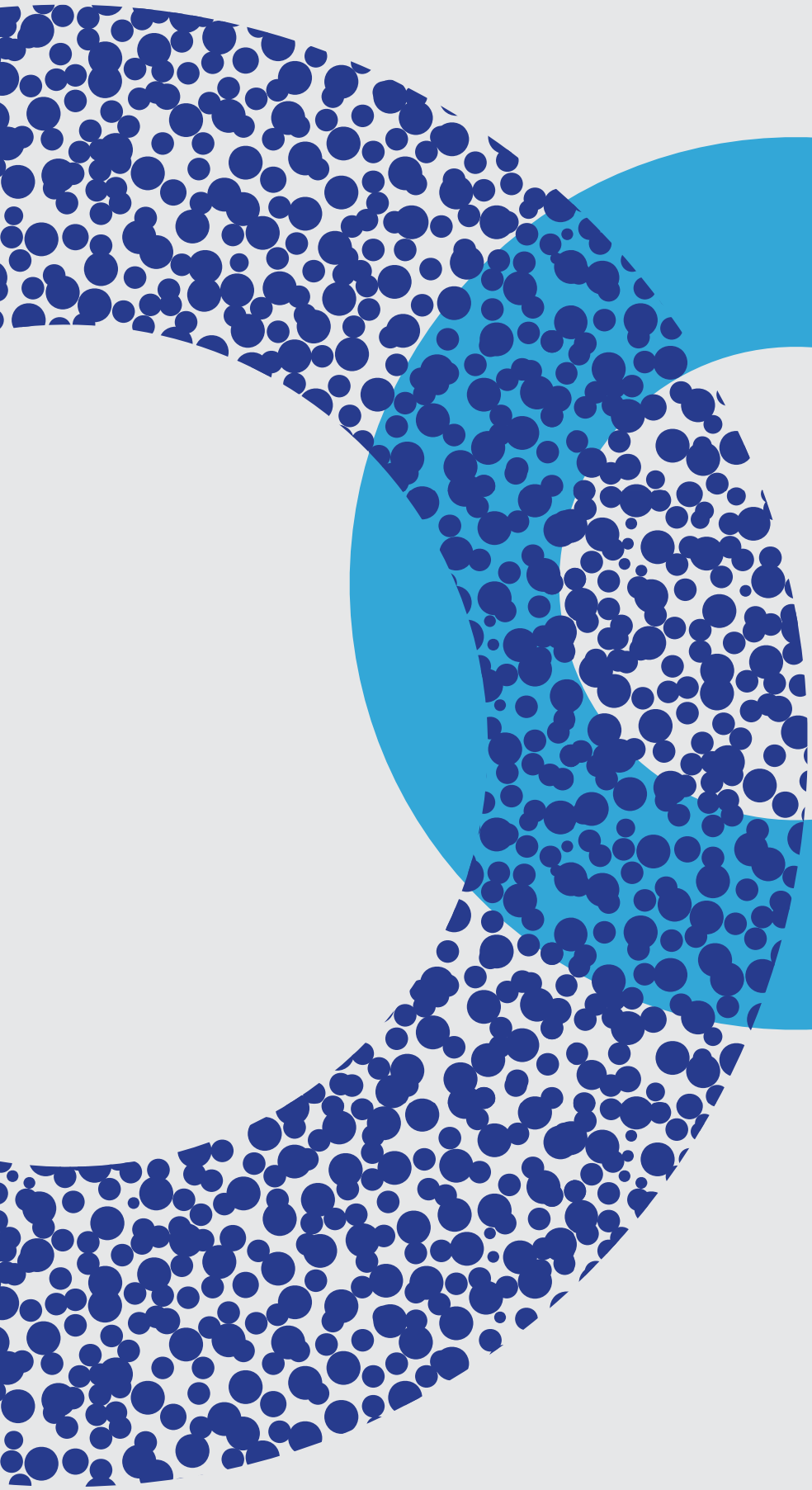

Danish Diabetes Academy

Annual Report 2019

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Executive summary

Highly profiled educational activities, highly rated workshops and networking and collaboration activities with national and international research institutions and recruitment of outstanding junior researchers and visiting professors – all aimed at the Danish Diabetes Academy (DDA) to serve as a national hub within diabetes research and the DDA to increase the research competences of the next generation of diabetes researchers. This has been the characteristics of DDA in 2019 - a year with high activity and ambitions.

In 2019, the DDA consolidated its organisation with a supportive, active and high-calibre governance structure and an Executive Management Team that ensures that the organisation is well run and delivers on its mission and strategic objectives.

The DDA's ambition to be recognised for world-class and internationally oriented educational activities was displayed through a total of 12 PhD and postdoc courses and symposia, which attracted around 600 participants. The DDA Educational and Talent Development programme included a high variety of topics, a high rate of international speakers and the use of various learning and pedagogic approaches to deliver the activities. Overall, the activities achieved high satisfaction scores from participants.

The DDA's aim to serve as a national hub within diabetes, unifying academia, hospitals and the life sciences industry in Denmark was displayed through a total of 12 highly rated networking and collaboration activities. The activities included collaborations with internationally recognised research institutions, a high variety of topics, a high rate of international speakers and an endorsement from the scientific community from Denmark and abroad. Overall, the activities led to new potential collaborations between national and international researchers.

The DDA's aim to recruit outstanding junior national and international researchers and visiting professors was displayed through the allocation of a total of 34 grants: 13 PhD scholarships, 11 postdoc fellowships, four visiting professorships, four industrial PhD Scholarships and two industrial postdoc fellowships. The Recruitment and Grant Activities included a transparent application and review process involving external review by international peers. Additionally, the researchers receiving grants from the DDA begin to report the output of their research through publications, dissemination activities and further funding.

A future focus of the DDA will be to facilitate the reorganisation of the four DDA bodies in 2021 and to implement a revised communications strategy. Together with the DDA bodies, the DDA will also begin to develop an impact strategy to capture the wider impact and influence of its work over the past years.

The future focus of the DDA Educational and Talent Development activities is to keep the variety of topics and research disciplines included in each activity and to keep and allocate time for networking activities and various interactive learning methods. Furthermore, the focus is to continue to include a high rate of international speakers, increase the collaboration with international research organisations and to bridge the gap between the life sciences industry and junior researchers from academia and hospitals.

The focus of the upcoming DDA Networking and Collaboration activities will be to continue the strong collaboration with academia, hospitals and the life sciences industry. In addition, the focus will be to build a strong alumni network for current and former DDA-funded researchers and to offer a strong, formalised structure for peer-mentoring circles.

In relation to the Recruitment and Grant activities, the DDA will maintain the open, free and transparent competition of all DDA grants and continue to encourage applications for more mobile candidates. Furthermore, the focus is to bridge the gap between the life sciences industry and junior researchers through industrial PhD and industrial postdoc grants and to increase the interest in the visiting professorship scheme.

The future focus of the DDA is based on suggestions and feedback from the DDA bodies and the participants of the DDA activities in 2019, and the DDA appreciates the large commitment and involvement demonstrated by the members of the DDA bodies, the DDA-funded researchers and the participants at the activities organised by the DDA in 2019.

Tore Christiansen
Managing Director

Resumé

Højtprofilerede uddannelsesaktiviteter, workshops og netværksaktiviteter organiseret i samarbejde med nationale og internationale forskningsinstitutioner og rekruttering af juniorforskere og gæsteprofessorer. Alt sammen med det formål at fastholde Danish Diabetes Academy (DDA) som nationalt samlingspunkt indenfor diabetesforskning og øge forskningskompetencerne for den næste generation af diabetesforskere. Dette beskriver DDA i 2019 – et år med høj aktivitet og høje ambitioner.

DDA's ambition om at være anerkendt for førsteklasses og internationalt orienterede uddannelsesaktiviteter har vist sig gennem de 12 ph.d.- og postdoc-kurser og symposier, som DDA afholdt i 2019 med deltagelse af omkring 600 forskere. DDA's uddannelsesprogram i 2019 inkluderede mange forskellige forskningsemner, et højt antal internationale foredragsholdere og brug af mange forskellige læringsmetoder til afvikling af aktiviteterne. Disse erfaringer vil være udgangspunktet for DDA's uddannelsesprogram i 2020.

DDA's ambition om at fungere som nationalt samlingspunkt inden for diabetes og samle universiteter, hospitaler og life-science industrien i Danmark har vist sig gennem de 12 højt vurderede netværksaktiviteter, som DDA afholdt i 2019. Disse aktiviteter, hvoraf nogle blev arrangeret i samarbejde med internationalt anerkendte forskningsinstitutioner, indbefattede mange forskellige forskningsemner og et højt antal internationale foredragsholdere og fik opbakning fra det videnskabelige miljø i både Danmark og udlandet. Disse aktiviteter har resulteret i nye potentielle samarbejder mellem nationale og internationale forskere.

DDA's ambition om at rekruttere enestående nationale og internationale juniorforskere og gæsteprofessorer har vist sig gennem uddelingen af i alt 34 bevillinger: 13 ph.d.-stipendier, 11 postdoc-stipendier, fire gæsteprofessorater, fire erhvervs-ph.d.-stipendier og to erhvervs-postdoc-stipendier. DDA's bevillingsaktiviteter omfatter en transparent ansøgnings- og evalueringsproces med ekstern bedømmelse foretaget af internationale faglige eksperter. Derudover er de forskere, som har modtaget en bevilling fra DDA, begyndt at indrapportere betydelige resultater af deres forskning i form af publikationer, formidlingsaktiviteter og yderligere forskningsbevillinger.

DDA vil i 2020 fokusere på fortsat at tilbyde uddannelses- og netværksaktiviteter af høj kvalitet. Derudover vil fokus være på at øge samarbejdet med internationale forskningsinstitutioner, bygge yderligere bro mellem life-science industrien og forskere fra både universiteter og hospitaler samt opbygge et stærkt alumnenetværk for nuværende og tidligere forskere, der har modtaget bevillinger fra DDA.

DDA værdsætter den store støtte og høje engagement, som medlemmerne af DDA's komitéer, forskere støttet af DDA samt deltagerne på aktiviteter organiseret af DDA har udvist i 2019.

Tore Christiansen
Managing Director

DDA at a glance

The Funding

Received in 2012-2017: 201 million DKK from the Novo Nordisk Foundation (NNF) to establish the DDA

Received in 2018-2022: Additionally, 156 million DKK from the NNF for another five-year funding of the DDA

Main Collaborators: Nationally and Internationally - 2019

The DDA collaborated with Danish universities, hospitals and the life sciences industry when organising educational activities

The DDA organised educational activities and networking activities in collaboration with Banting and Best Diabetes Center, Canada, Joslin Diabetes Center, USA, Deutsche Zentrum für Diabetesforschung, Germany, and Christian-Albrechts University of Kiel, Germany

DDA Networking and Collaboration Activities 2019

12 networking and collaboration activities

Around 450 participants in total

DDA Recruitment and Grant Activities

The DDA allocated the following grants in open and free competition in 2019:

- 17 PhD scholarships (2/3-financed and 1/3-financed), including 4 industrial PhD scholarships
- 13 postdoc fellowships (two-year and three-year), including 2 industrial PhD scholarships
- 4 visiting professorships

Scientific Publications, Dissemination and Further Funding by DDA-funded researchers

DDA-funded researchers published 35 unique publications

DDA-funded researchers reported a total number of 91 dissemination activities with most talks at conferences and participations in workshops

DDA-funded researchers reported further funding of 12 million DKK in total

DDA Traditions

DDA PhD Summer School for PhD students: Four interactive days with top senior speakers from Denmark and abroad

DDA Winter School in Malaga, Spain, for postdocs: Four interactive days with top senior speakers from Denmark and abroad

DDA Annual Day: An annual celebration in November of the high-class quality diabetes research in Denmark

DDA on Social Media

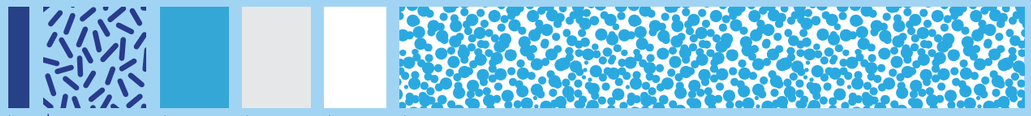
- Twitter: DDA-Denmark
- Facebook: @danishdiabetesacademy
- LinkedIn: Danish Diabetes Academy
- Instagram: danish_diabetes_academy
- Youtube: Danish Diabetes Academy

The DDA uses the following hashtags:

#Danishdiabetesacademy
#DDA_education
#DDA_network
#DDA_grant

In 2018, the number of the Organisation was

138



91
Members of the Committee for Talent Development

9
Seven employees and two student assistants in the Executive Management Team, which is located at Odense University Hospital (grant holder)

10
Members of the International Advisory Board

10
Members of the National Advisory Forum

15
Members of the Committee for Education

3
Members of the Board of Directors

DDA Educational Activities 2019

Around

600

participants in total

12

PhD and postdoc courses and symposia

Around

50%

of the invited speakers at the DDA PhD and postdoc courses and symposia/seminars were from abroad

Vision

The vision is to enhance the quality of Danish diabetes research education to ensure that it remains at the highest international level

Mission

The mission is to educate and train the next generation of researchers in the field of diabetes

DDA Recruitment and Grant Activities

The DDA allocated the following grants in open and free competition in 2019:

17

PhD scholarships (2/3-financed and 1/3-financed), including 4 industrial PhD scholarships

13

postdoc fellowships (two-year and three-year), including 2 industrial PhD scholarships

4

visiting professorships

Scientific Publications, Dissemination and Further Funding by DDA-funded researchers

DDA-funded researchers reported further funding of

12 million

DKK in total

DDA-funded researchers published

35

unique publications

DDA-funded researchers reported a total number of

91

dissemination activities with most talks at conferences and participations in workshops

Organisation, Management and Operations

In 2019, the DDA consolidated its organisation with a supportive, active and high-calibre governance structure and an Executive Management Team that ensures that the organisation is well run and delivers on its mission and strategic objectives.

Organisation and Management

The DDA is headed by a Board of Directors, which is responsible for defining and implementing the overall strategy of the DDA. The Board of Directors is supported by the Executive Management Team and the four bodies: The International Advisory Board, the Committee for Education, the National Advisory Forum and the Committee for Talent Development.

The organigram on the following page **(Figure 1)** shows the organisation of the DDA.

Detailed information about the tasks and responsibilities, meetings and the members of each the DDA's bodies can be found at the DDA website: www.danishdiabetesacademy.dk/about/organisational-structure

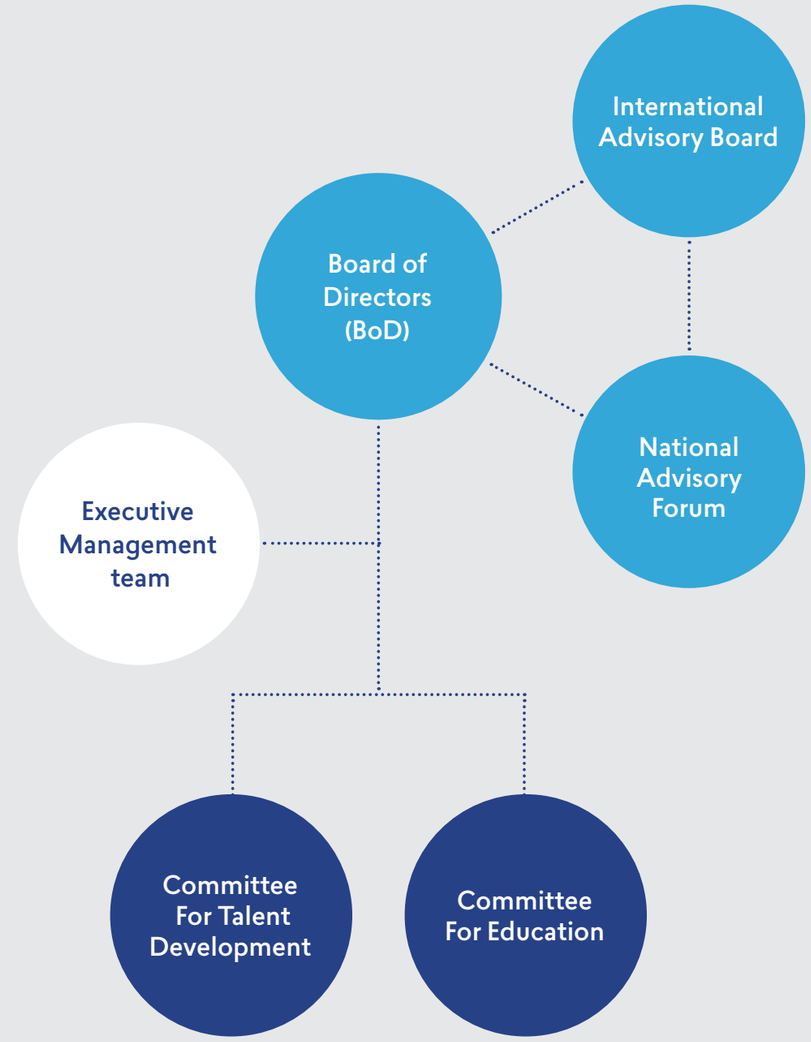


Figure 1. Organigram of the DDA

Strategic Focus and Activities 2019

Depending on their tasks and responsibilities, the boards and committees had different strategic focuses for their work and meetings in 2019.

During the four times that the Board of Directors convened in 2019 they focused on enhancing the collaboration between academia, hospitals and life sciences industry within the three main areas: Educational and Talent Development Activities, Networking and Collaboration Activities and Recruitment and Grant Activities. Another major strategic focus was the sharpening of the communications strategy and the expansion of the Committee for Talent Development.

During the meetings of the International Advisory Board and the National Advisory Forum, both bodies discussed how the DDA can begin to capture and demonstrate the wider impact and influence of its work and activities over the past years. In addition, the bodies gave suggestions for refinement of the activities within the three main areas and for the expansion of the Committee for Talent Development.

In 2019, the Committee for Education held two meetings where they focused on developing the educational programme. In addition, their strategic focus was to discuss how to implement learning outcomes at the educational activities. A new member representing the life sciences industry was included in the Committee for Education to strengthen the DDA's collaboration with the life sciences industry.

The Committee for Talent Development did not convene in 2019, but the Board of Directors held two teleconferences with the two chairmen from the committee to discuss and evaluate the DDA grant applications and the grant review process. The committee was expanded in 2019 to include more members with expertise within clinical, qualitative and technology research to match the research topics described in the submitted applications.

In 2019, the seven members and the two student assistants of the Executive Management Team focused on providing service and support to the members of the DDA bodies, the main target groups (junior diabetes researchers and senior researchers at Danish research institutions) and other main collaborators from Denmark and abroad. The Executive Management Team prioritised presence at nearly all DDA educational and networking events; clear, relevant and frequent communication with the members of the DDA bodies and DDA-funded researchers and support and assistance to reviewers of the Committee for Talent Development.

Overall, the DDA organisation runs smoothly and efficiently, and the DDA appreciates the large commitment and involvement demonstrated by the members and the chairmen of the DDA bodies.

Reflections and Future Focus

The future focus of the Executive Management Team will be to maintain the good collaboration with the members of the DDA bodies, the junior diabetes researchers and the main collaborators of the DDA.

Another focus point will be the reelection of the four DDA bodies in 2021, as these bodies were appointed for a period of two and a half years. The Executive Management Team will start up this process in 2020.

As suggested by the International Advisory Board, the DDA is now at a point where it can begin to evaluate the wider impact and influence of its activities. Preliminary discussions on this issue were already opened in the National Advisory Forum and the International Advisory Board in 2019, and these discussions will continue in 2020 with the aim to develop an impact strategy for the DDA.

Finally, the focus of the DDA bodies in 2020 will be to discuss how to strengthen the collaboration with the life sciences industry, and how to attract more industrial PhD students and postdocs for the DDA industrial grants. Furthermore, the DDA bodies will discuss how to adopt a more strategic approach in connection with collaboration with international research institutions for organising the educational and networking activities.

In conclusion, the Executive Management Team will continue to implement suggestions from the DDA bodies in the activities and ensure that the overall strategy decided by the Board of Directors is implemented.

Budget and Accounts 2019

The DDA is financed by the Novo Nordisk Foundation and is hosted by Odense University Hospital (grant holder). In 2019, the grant budget amounted to 41,813,000 DKK. The budget and accounts for 2019 can be seen in **Table 1** and **Figure 2**. The DDA experienced a small surplus in 2019, mainly due to unallocated grants to industrial postdoc fellowships.

The DDA received 708,000 USD in 2018 from the life sciences company AstraZeneca/MedImmune of which 216,000 USD were allocated to a three-year postdoc fellowship in 2019 to the University of Southern Denmark. DDA-funded researchers reported further funding of 12 million DKK in total (see page 50 and DDA Dialogue Report 2019).

Also, some of the DDA activities were co-funded by Danish and international research institutions. For example, research groups in Denmark and abroad co-funded the DDA educational and networking activities by providing speakers or extra funding for conducting the activities. An exact overview of this co-funding is not available.

Financial report (Amounts are stated i 1,000 DKK)	Budget	Result	Difference
Educational Activities and Talent Development	3,750	3,863	-113
Networking and Collaboration Activities	700	800	-100
Grants	30,800	27,832	2,968
Executive Management Team (salary)	4,025	3,994	31
Running Costs	1,830	1,874	-44
Host institutions' direct costs associated with DDA	708	709	-1
Total	**41,813**	**39,072**	**2,741**

Table 1. The table shows the budget 2019 compared with the result for 2019, including the difference between the budget and the result. Amounts are stated in 1,000 DKK.

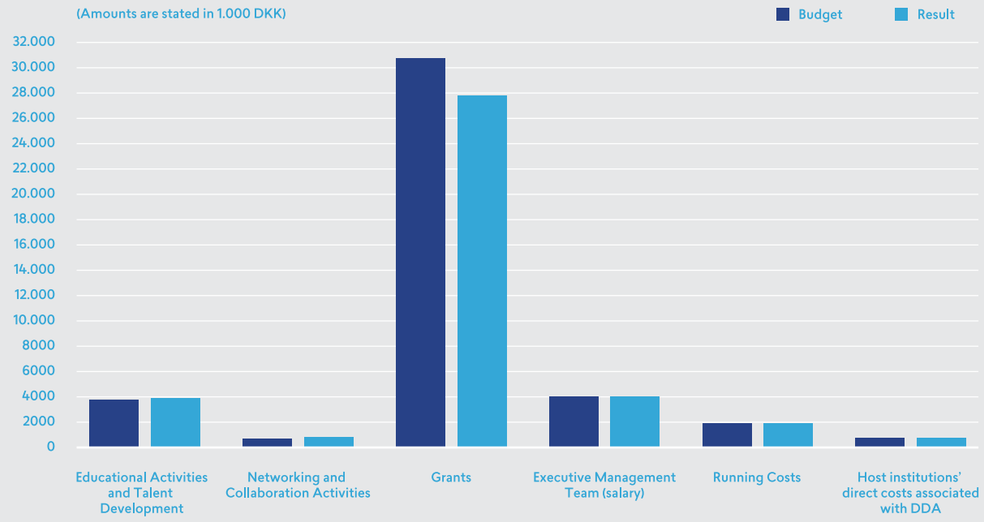


Figure 2. The figure shows the budget 2019 compared with the results for 2019. Amounts are stated in 1,000 DKK.

Communications

The overall aim of the DDA communications activities is to support the DDA's mission and vision and ensure that the DDA accomplishes its overall aims and objectives.

The DDA's ambition with the communications strategy is to make known publicly the DDA activities within Education and Talent Development, Networking and Collaboration and Recruitment and Grants, including the results of the DDA-funded researchers' research, e.g. publications.

This ambition should be achieved by disseminating information about the DDA activities and the DDA-funded researchers' research and research results through the DDA communications channels (website, social media and newsletters).

The main target groups for the DDA communications and outreach activities are junior and senior researchers within diabetes in academia, hospitals and the life sciences industry in Denmark. Secondary target groups include diabetes researchers and collaborators from abroad and professional organisations, politicians and EU research consortia.

Strategic Focus and Activities 2019

In 2019, the strategic focus for the DDA communications activities has been to initiate a revision of the DDA communications strategy. Another strategic focus of 2019 has been to further increase the activities on the existing DDA social media (Twitter, LinkedIn and Facebook) in order to create attention to the DDA activities.

Particularly, the DDA increased its activities on LinkedIn and Twitter in 2019, where the number of followers increased by 60% on LinkedIn and more than doubled on Twitter compared to 2018 (see **Figure 3**). Also, the number of own posts and reactions to own post almost doubled on LinkedIn and quadrupled on Twitter compared to 2018. Finally, the DDA Instagram profile created a day-to-day interaction with the DDA main target groups.

Based on interviews with DDA-funded PhD students and postdocs, the DDA earned media coverage 93 times (based on 39 press releases) in 2019, among others in newspapers, electronic periodicals and websites of the Danish universities and university hospitals. This is an increase of 55% compared to 2018.

Furthermore, the DDA website and the DDA newsletters were used to disseminate information about the DDA activities. The number of visitors and the number of subscribers to the newsletter also increased in 2019 compared to 2018 (by around 28%).

Finally, the Executive Management Team was present at the Scientific Sessions of the American Diabetes Association (ADA) in San Francisco, USA, and the Annual Meeting of the European Association for the Study of Diabetes (EASD), Barcelona, Spain, to facilitate interaction between the members of the Executive Management Team and junior national and international diabetes researchers and other relevant collaborative partners, among others.

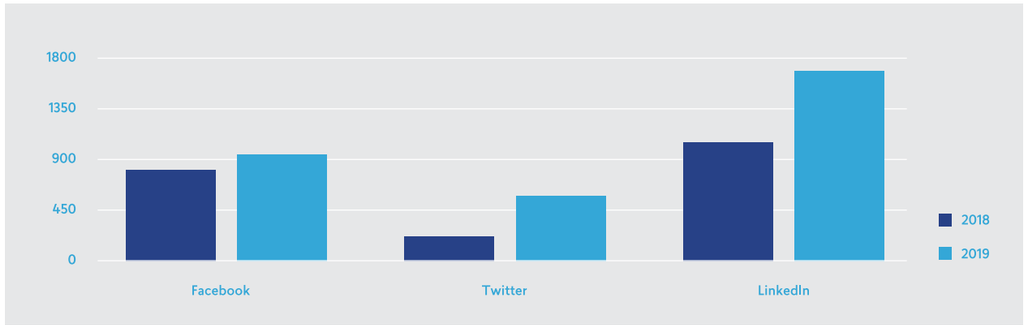


Figure 3. The figure shows the number of followers of the DDA social media (Facebook, Twitter and LinkedIn) as per 31 December 2018 and 31 December 2019, respectively.

Reflections and Future Focus

The future focus of the DDA communications activities is to start implementing the revised communications strategy with focus on expanding the use of social media for dissemination of relevant information to the DDA's main target groups. Also, the DDA will consider the best and most appropriate metrics for assessing the outcome of the DDA communications activities.

The communications activities of 2019 show that the DDA's posts on the DDA social media, and in particular LinkedIn, Twitter and Instagram, create a good connection to the main target group of the DDA and draw attention to the DDA's activities.

The DDA website has also proved to be an important space for information about the DDA activities to the main target groups, the public and the media. The DDA will therefore launch a renewed website in 2020 with a refreshed graphic profile.

In conclusion, the DDA will focus on creating attention to its activities and building the DDA brand to ensure that the DDA is recognised as a world leader in educating and training the next generation of diabetes researchers.

Educational Activities and Talent Development

The overall aim of the DDA's Educational Activities and Talent Development programme is to strengthen the research training available to PhD students and postdocs within the field of diabetes affiliated to research institutions in Denmark. A close and strong collaboration with national and international research institutions within academia, hospitals and the life sciences industry is the prerequisite to success.

The DDA's ambition is to be recognised for world-class and internationally oriented PhD and postdoc courses and symposia and seminars within diabetes with an interdisciplinary focus that strengthen the PhD students' and postdocs' critical reflection and their ability to put the acquired competences to use.

This ambition should be achieved by organising several well-attended activities including national and international speakers from a wide range of research disciplines and receiving high participant satisfaction ratings with the scientific programme and the administration and organisation of the activities.

Strategic Focus 2019

The strategic approach in 2019 for organising the Educational Activities and Talent Development programme involved three main elements.

Firstly, the ideas for future activities and the development of these activities involved a bottom-up process where the Executive Management Team invited suggestions from DDA faculty members and members of the DDA committees and boards.

Secondly, for each educational activity, the DDA focused on incorporating and including interdisciplinary research with elements of basic, translational, clinical and epidemiological research presented by researchers from national and international research institutions within academia, hospitals and the life sciences industry.

Thirdly, the DDA retained the focus of 2018 on implementing new learning methods to support higher interactivity between speakers and participants and to facilitate adaptive learning, critical thinking, knowledge and networking.

Educational Activities and Talent Development 2019

In 2019, the DDA organised a total of 12 PhD and postdoc courses and symposia, which attracted around 600 participants, mostly junior diabetes researchers (master students, PhD students and postdocs) from academia and hospitals in Denmark and abroad.

The 2019 Educational Activities and Talent Development programme included (i) a high variety of topics from transferable skills courses to more diabetes specific activities with incorporation of interdisciplinary research in many of the activities; (ii) a high rate of international speakers (see **Table 2**); and (iii) the use of various learning and pedagogic approaches to deliver the activities. Overall, the activities achieved high satisfaction scores from participants (see **Figure 4**). **Table 2** gives an overview of the DDA Educational Activities and Talent Development of 2019.

Activity	Date	Participants (n)	Speakers from abroad (%)
PhD & Postdoc Course on Reproducible Quantitative Methods: Data Analysis Workflow Using R*	4 – 5 and 18-19 March	23	33
Postdoc Course on Presenting Powerfully - DDA Presentation Course *	13 – 14 March	15	100
Postdoctoral Research Leadership Course*	1 – 2 and 21 May	20	0
Symposium on Non-coding RNAs in Metabolic Disease*	6 – 8 May	77	73
Symposium on Diabetes - Do It Yourself Movement*	14 May	88	54
Symposium on Co-morbidities in Diabetes	14 – 15 August	81	25
DDA Summer School 2019 for PhD Students*	26 – 29 August	46	53
Presenting Powerfully - PhD & Postdoc Presentation Course*	11-12 September	15	100
Autumn School in Microbiome in Complex Metabolic & Inflammatory Diseases for PhD Students*	30 September – 2 October	58	65
DDA Winter School 2019 for Postdoc Fellows*	3 – 8 November	54	80
PhD Course on Basal Metabolism & Molecular Mechanisms in Diabetes*	25 – 27 October	43	0
Symposium on Children, Adolescents & Emerging Adults with Type 1 Diabetes	9 – 10 December	77	47
Total		**597**	

* Activity where participants earn ECTS points

Table 2. The table shows the DDA Educational and Talent Development Activities 2019 including date, number of participants (n) and percentage of speakers from abroad (%).

An example of the interdisciplinary approach included in the activities is the two-day symposium on *Children, Adolescents & Emerging Adults with Type 1-Diabetes* where the aim was to highlight how research and the clinic can interact to develop optimal treatments for children and adolescents with type 1-diabetes. As a new initiative, each session was structured with an up-to-date lecture on basic research e.g. pathophysiology and prevention of type 1-diabetes, followed by a talk about the challenges of clinical treatment and ending with a talk about the psychosocial aspects for individuals living with diabetes and seen from the parents' perspective. This approach deepened the understanding of the challenges that each research area is facing and the potentials of interdisciplinary collaboration and research to understand, prevent and treat the disease.

An example of the successful inclusion of various learning methods in the activities was the *DDA Winter School for Postdocs* in Malaga, Spain. The five interactive days of this course for postdocs from Denmark and abroad included scientific lectures from national and international experts bridging fundamental discoveries and clinical relevance, discussions and workshops on career opportunities and poster and meet-the-professor sessions. A high focus was put on a structured networking activity where the participants discussed how to answer the tough questions people around the world are asking about research culture and developed creative solutions in an effort to strengthen the research community and advance the scientific understanding and future treatment of diabetes. A further description of this activity can be seen on page 26 – 27.

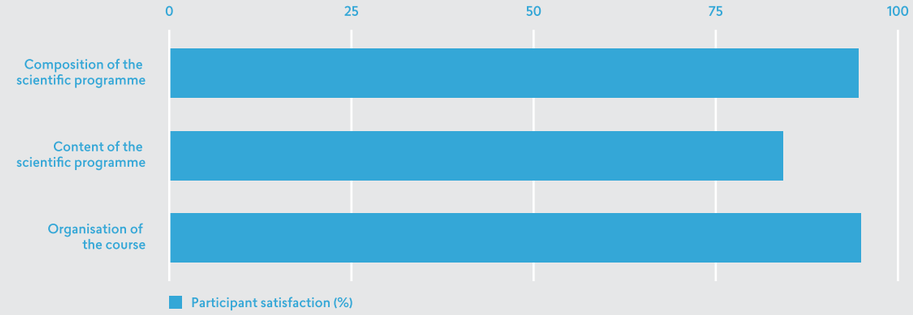


Figure 4. Participant average satisfaction (%) of the DDA Educational and Talent Development Activities 2019. The figure shows the percentage of participants stating in the participant evaluations that they were satisfied to a very great (5) or to a large extent (4) with the composition of the scientific programme, the content of the scientific programme and the organisation of the course, respectively, on a scale from 1 to 5 with 5 as highest score.

Winter School for Postdocs 2019

During five interactive days of the DDA Winter School in Malaga, Spain, 51 national and international postdocs experienced exiting scientific lectures from national and international experts and gained a broader scientific perspective by bridging fundamental discoveries and clinical relevance. Further they presented their own research through oral and poster sessions, joined meet the professor sessions and listen and participated in workshops on career opportunities and were clarified in regards to own carrier and goals.

A central part of the Winter School was the DDA Winter School Challenge "next generation diabetes scientist shaping global research culture". When researchers are driving ambitious research projects, they need the best working culture to succeed. But are there aspects of the research culture that hold themselves or their colleagues back? Maybe challenges in funding, access to data and research results, infrastructure, career path options, how researchers are assessed, the value of the team versus the value of the individual, or diversity in the working culture. Taken together these areas are "research culture," a global term that represents the norms, values, expectations, attitudes, and behaviors of the scientific community. Thus, we asked the participants to tackle the tough questions people around the world are asking about research culture and develop creative solutions in an effort to strengthen the research community and advance the scientific understanding and future treatment of diabetes.

More specifically, participants were presented to five different challenges: (i) The actual hypercompetition for resources and how the priorities for public, foundation and industrial funding should be set and distributed?; (ii) open science/open access and how to make open science more appealing to scientists?; (iii) positive influence of failure and how to introduce a positive influence of failure and make negative results valued/easier to publish for the scientific community?; (iv) team science and research assessment and how should researchers be assessed and how to reward groups and collaborative efforts instead of selected individuals?; and (v) public trust and perception of science and how can scientist gain the public's trust in science and prevent media misinterpretation?

The postdocs were divided into five teams, each focusing on a specific challenge topic. As part of their preparation, they had one important task to do in advance of the Winter School: they should interview three people from their working environment about their experiences and opinions on the particular challenge topic and from the different rungs of the scientific ladder, i.e. a principal investigator, a postdoc and a PhD student. During the Winter School, they met with their team to research and discuss the topic as well as the pros and cons for possible solutions to improve research culture.

The end product was a presentation on the final day of the Winter School and the ultimate end product was the submission of a written perspective piece in Acta Physiologica with the goal to represent the collective voice on the challenges facing postdoctoral researchers and how this community of the next generation of diabetes research leaders is shaping global research culture.

Read more about the five challenges.

Reflections and Future Focus

The future focus of the DDA Educational Activities and Talent Development is based on participant evaluations and feedback and suggestions from the DDA committees and boards in 2019. These indicate the following main focus points: (i) To keep the variety of topics and research disciplines included in each activity; (ii) to keep and allocate even more time for networking activities and include various interactive learning methods; (iii) to continue to include a high rate of international speakers, but also include even more junior researchers as speakers; (iv) to adopt a more strategic approach for collaborations with international research organisations; and (v) to find ways to bridge the gap between the life sciences industry and junior researchers from academia and hospitals.

Overall, the bottom-up approach involving DDA faculty members and members of the DDA committees and boards to give suggestions for the DDA Educational Activities and Talent Development programme has prompted the endorsement from the scientific environment and is a reason for the high attendance of the 2019 activities, with the majority of seats taken up at each activity. The DDA will therefore continue to adopt this approach in 2020.

The participant evaluations support the need for including transferable skills courses. Next year's Educational Activities and Talent Development programme will continue to include a high variety of topics of the courses and therefore also transferable skills courses. The DDA acknowledges the importance for the junior researchers to develop skills within adaptability, organisation, teamwork, leadership and presentation in their current or future job positions.

Feedback from participants attending the presentation course *Presenting Powerfully* offered by the DDA in 2019 clearly demonstrated an increased awareness of a new ability to be clearer, more concise and more effective when communicating projects and results. Causality is hard to prove, but there have been examples of junior researchers attending the courses who immediately after won prizes for best poster presentations at national and international conferences.

Successful researchers also need leadership skills for leading projects, disciplines or people. The DDA received excellent feedback from participant participating in the *Postdoc Research Leadership Course*. Based on this feedback and suggestions from the International Advisory Board, the DDA will design a specific research leadership programme: The *DDA Research Leaders Development Programme* for highly motivated junior researchers to develop the needed skills and mind-set to become the research leaders of tomorrow. This programme will be launched in 2020.

An encouraging observation is the consistent feedback from participants in 2019 on how valued the allocated space and time for networking is. In 2020, each educational activity will continue to have a strong platform for networking through both unstructured and structured activities. The ambition is to further promote the DDA's status as a national hub facilitating interdisciplinary research between researchers from academia, hospitals and the life sciences industry.

A seal of approval of the DDA educational activities is also the strategic approach of using a high percentage of scientific experts from abroad as speakers. Their contributions through lectures provide new perspectives and visions within the specific topic of the individual activities and the DDA's ambition is therefore to continue this approach. A new focus point will be to involve more junior researchers (postdocs) as speakers or workshop instructors at some of the PhD courses. In 2019, the DDA has included junior researchers in tandem talks (a mix of senior and junior researcher lectures) and as workshop instructors.

The DDA already has an existing excellent collaboration with international research institutions in Europe and North America. The ambition is to identify and select additional educational partners from prestigious international research institutions with research expertise complementing the existing research expertise in Denmark.

Finally, it should be emphasised that the DDA has an unresolved potential in building a closer collaboration with the life sciences industry. The potential lies in highlighting the career opportunities for shifting from employment at a university to a position in a life sciences company and to include talks and presentations from representatives from the life sciences industry.

In conclusion, the DDA has further optimised the Educational Activities and Talent Development programme in 2019 based on feedback and suggestions from participant evaluations and suggestions from the DDA committees and boards. In 2020, the DDA will retain its strategic focus, as described above, but also attach special attention to the above-mentioned focus points.

Networking and Collaboration Activities

The overall aim of the DDA's Networking and Collaboration Activities is to position the DDA as a national hub within diabetes, unifying academia, hospitals and the life sciences industry in Denmark and thereby contribute to strengthening educational activities and talent development within the area.

The DDA's ambition is to facilitate collaboration between junior diabetes researchers at Danish research institutions and researchers from Danish and international research groups across disciplines, professional societies and the life sciences industry or other sectors.

This ambition should be achieved by organising several well-attended and highly rated networking and collaboration activities in close collaboration with national and international researchers from academia, hospitals and the life sciences industry.

Strategic Focus 2019

The strategic approach in 2019 for organising the Networking and Collaboration programme involved three main elements. All three elements support the overall aim of positioning the DDA as a national hub within diabetes research, as described above.

Firstly, a bottom-up process where the Executive Management Team through open calls invited DDA members to suggest new activities for the Networking and Collaboration programme. This process ensured that the networking and collaboration activities featured relevant and topical topics and established a platform providing junior researchers with an arena and a space for exchanging ideas with senior national and international researchers.

Secondly, the format of each networking and collaboration activity focused on discussions in relation to recent, ongoing and future collaborations to tackle the present research challenges. This structure ensured a platform for interaction and debate and provided the junior researchers with an equal status in relation to the more senior researchers as the traditional one-way communications from the senior researcher to junior researchers were minimised.

Thirdly, the DDA used the Networking and Collaboration Activities to provide junior researchers with a professional community, ongoing connection with fellow researchers and a supportive environment. This was facilitated through structured networking activities driving researchers not knowing each other beforehand to establish contact with each other and through the start-up of peer-mentoring circles where peers empower peers to solve problems and serve as resources and sounding boards for one another.

Networking and Collaboration Activities 2019

In 2019, the DDA organised a total of 12 networking and collaboration activities, including workshops, conference events and the *DDA Annual Day,* which in total attracted around 450 participants from Denmark and abroad with a mix of junior and senior researchers from academia, hospitals and the life sciences industry.

The 2019 Networking and Collaboration programme included (i) a high variety of topics; (ii) a high rate of international speakers (see **Table 3**); and (iii) endorsement from the scientific community with attendance of national and international junior and senior researchers from academia, hospitals and the life sciences industry and in collaboration with internationally recognised research institutions. Overall, the activities led to new potential collaborations between national and international researchers, and the activities achieved high satisfaction scores from participants (see **Figure 5**). **Table 3** gives an overview of the DDA Networking and Collaboration Activities of 2019.

Table 3. The table shows the DDA Networking and Collaboration Activities 2019 including date, number of participants (n) and percentage of speakers from abroad (%).

Activity	Date	Participants (n)	Speakers from abroad (%)
Diabetic Wound Healing Workshop	3 – 4 January	20	22
Start-up Meeting with New DDA-Funded PhD & Postdoc Researchers	26 – 27 February	21	50
Workshop on Family Involvement & Psychosocial Support in the Care of Preteens with Type 1 Diabetes	28 – 29 March	13	55
Workshop on Effects of Circadian Clock & Timing of Eating on Diabetes, Obesity & Metabolism	4 – 5 April	37	80
Workshop for North European Young Diabetologists (NEYD Annual Meeting)	8 – 10 May	25	67
Screening and diagnosis of gestational diabetes mellitus in Denmark	21 May	24	33
American Diabetes Association (ADA) Annual Meeting Networking Meeting	8 June	35	NR
European Association for the Study of Diabetes (EASD) Annual Meeting Networking Event	21 September	80	NR
DDA Training Day for PhD Students & Postdoc Fellows	23 October	30	100
DDA Annual Day	12 November	115	33
Workshop on Causes and Consequences of Insulin Resistance in Pregnancy	12 December	30	60
Workshop on Diabetes Distress Intervention	12 – 13 December	27	100
Total		**457**	

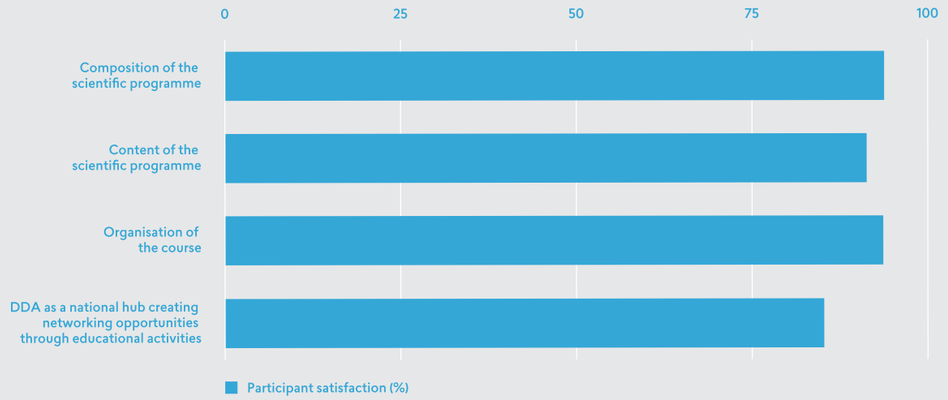


Figure 5. Participant average satisfaction (%) of the DDA Networking and Collaboration Activities 2019. The figure shows the percentage of participants stating in the participant evaluations that they were satisfied to a very great extent (5) or to a large extent (4) with the composition of the scientific programme, the content of the scientific programme, the DDA as a national hub creating networking opportunities through educational activities and the organisation of the course, respectively, on a scale from 1 to 5 with 5 as highest score.

An example on the successful use of the bottom-up process was the organisation of workshops focusing on diabetes management, a topic which previously has not attained high focus in the Networking and Collaboration programme. The *Workshop on Diabetes Distress* attracted health professionals from the five Steno centres in Denmark and was facilitated by acknowledged experts in this area: Professor Larry Fisher and Dr. Danielle Hessler Jones from University of California, San Francisco, USA, and DDA visiting professor Jackie Sturt, Kings College, London, UK. All participants substantially expanded their knowledge about current, ongoing and planned research and effective methods identified to engage with and support people with diabetes distress. Professional networks were established across Denmark and plans were made for translation of important and useful written material for use in diabetes care.

An example of how well-structured workshops can stimulate to further collaboration is the *Workshop on Effects of Circadian Clock & Timing of Eating on Diabetes, Obesity and Metabolism* with the aim to build a strong international network within metabolism and circadian rhythm. The workshop included leading researchers at different stages from academia, hospitals and the life sciences industry within the field of circadian rhythm, diabetes and obesity in humans. The workshop was followed up by an application to the EU Horizon 2020 programme with contribution from the DDA and over 20 collaborators across Europe and across sectors.

Another example of the DDA Networking and Collaboration Activities can be seen on page 36 – 37.

Finally, DDA-funded researchers have reported several collaborative partners. These include bi-lateral or multi-lateral partnerships that have resulted from or are directly linked to the DDA grant and participation as a result of the grant in a network, consortium, multi-centre study or other initiative. The analysis showed 66 unique collaborations with a majority of these in Denmark, USA, UK, Australia and Germany. In addition, the analysis showed a wide distribution of collaborators by sector, with a majority in academia, followed by hospitals and the life sciences industry. Additional information on the collaborations reported by the DDA-funded researchers can be seen here.

The Danish Diabetes Academy's involvement in the area of gestational diabetes research in 2019

Professor Peter Damm, Rigshospitalet, comments on the Danish Diabetes Academy involvement in the Gestational diabetes research in 2019.

Today, gestational diabetes (GDM) complicates around 4% of pregnancies in Denmark. For a person like me, who have been in the diabetes and pregnancy field for many years, it is very interesting to observe how the interest for GDM has changed over the years.

Before the millennium, GDM screening and diagnosing in Denmark were mainly performed at obstetrical departments at the big university hospitals, and there was a very emotional debate, where some argued, that GDM was an important condition needing diagnosis and treatment, while others claimed that GDM was just a diagnostic condition without clinical significance.

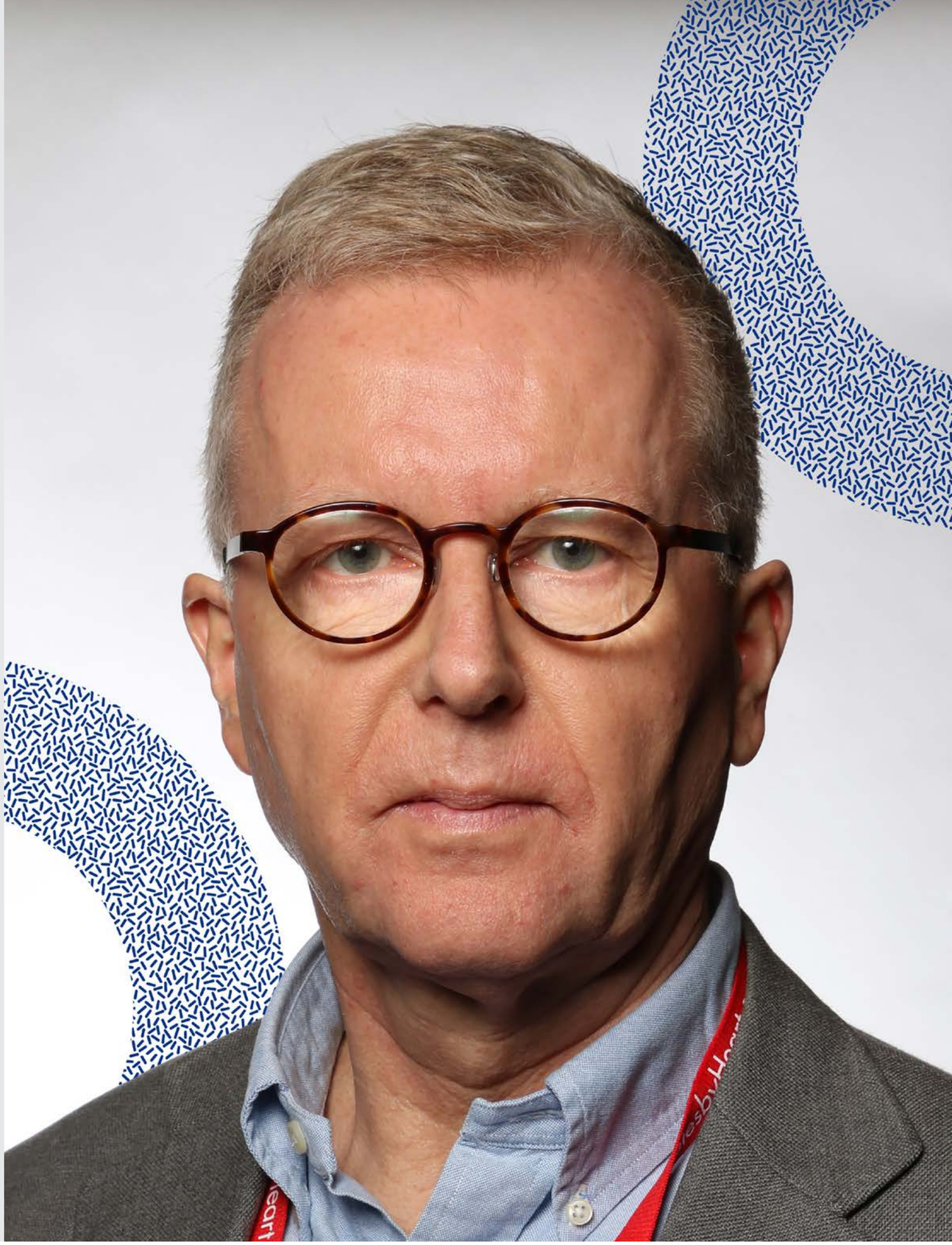
Much has changed since then, and today there is an immense interest and need for further interest in GDM both among basic scientists, clinicians and epidemiologists.

Therefore, we are very happy that diabetes and pregnancy, and GDM in particular, have received attention from the DDA in 2019.

Professor David McIntyre from Brisbane, Australia, and Professor Gernot Desoye from Medical University of Graz, Austria, have in open and free competition both been granted a DDA visiting professorship, and it is the ambition the next couple of years to build a number of networking activities around their presence in Denmark.

Professor David McIntyre is an international renowned endocrinologist working within many aspects of diabetes in pregnancy, but specifically with GDM screening and diagnosis. David McIntyre has previously been granted a DDA visiting professorship, and the work during his first visiting professorship has been of importance for the Danish clinical handling of GDM screening and diagnosing. His research has questioned if new international criteria should be implemented in Denmark without further studies. In relation to this, it was therefore very positive that MD Cathrine Scheuer, Nordsjællands Hospital, recently in the competition with other talented researchers received a DDA PhD scholarship to investigate GDM screening and GDM diagnostic criteria in a Danish setting. Professor Gernot Desoye will during his stay here at Rigshospitalet provide us with an absolutely top international level of scientific expertise within research on maternal metabolism and placental outcomes in early and late pregnancy. This also goes nicely hand in hand with the DDA-funded basic science postdoc projects covered by Line Hjort, who investigates the long-term offspring consequences of exposure to maternal GDM on a basic science level looking at e.g. epigenetic changes in different tissues, and Anja Sørensen studying the association between microRNAs and development of GDM.

Together with the two visiting professors and with national and international colleagues within the field of diabetes and pregnancy and with support from the DDA, two excellent workshops were organised in 2019. These events, where young and established Danish researchers in the field could meet and network with each other and with world leading researchers, were highly acknowledged by the participants. As examples of these networking opportunities, it can be mentioned that several Danish researchers, currently or previously funded by the DDA, have been on shorter or longer research visits at the departments/laboratories of the two professors and of some of the international speakers in Australia, Austria and the United States. In Denmark, we have always had a good national collaboration within the field of diabetes and pregnancy, but this has been further improved by the mutual collaboration with the two visiting professors, who both support existing research fields and add new knowledge and inspiration to less established research fields.



Reflections and Future Focus

The future focus of the DDA Networking and Collaboration Activities is based on participant evaluations and feedback and suggestions from the DDA committees and boards in 2019. These indicate the following main focus points: (i) To keep the variety of topics and research disciplines included in each activity to foster interdisciplinary and cross-sectional collaborations; (ii) to provide junior researchers with a strong professional and supportive environment by building a strong alumni network for current and former DDA-funded researchers and by offering a strong, formalised structure for the peer-mentoring circles; and (iii) to continue to strengthen the collaboration between the life sciences industry and junior researchers from academia and hospitals.

The endorsement of the DDA Networking and Collaboration programme from the diabetes research community in Denmark is a consequence of the applied bottom-up approach involving the DDA faculty members for suggestions to the programme. Furthermore, the endorsement is also a consequence of the streamlined, transparent and strong collaboration between the Executive Management Team and scientific experts from Denmark and abroad, which will continue in 2020.

A result of the DDA Networking and Collaboration Activities was also that the DDA was involved in two applications to the EU Horizon 2020 programme in 2019. These applications involved national and international partners from academia, hospitals and the life sciences industry and aimed to raise funding for structured training of highly skilled early-stage researchers and funding for bottom-up networks that boost research, innovation and careers. The format and concept of the DDA workshops provides the DDA with an opportunity to identify new opportunities for future EU Horizon applications.

A successful scientific career requires a strong vertical supervisor (mentor)-mentee relationship. However, advice from colleagues from the lab or the clinic or from researchers from other research institutions on new ideas and perspectives or how to tackle day-to-day challenges is also crucial for career advancement. These aspects have inspired us to the ambition of building a strong alumni network for the 200 current and former DDA-funded researchers with the aim to create a platform for spread of knowledge and experience. In addition, the DDA's ambition with the introduction of the peer-mentoring circles is that the junior researchers gain access to new networks, greater connection to fellow researchers, acquisition of knowledge and a better understanding of research culture.

Together with partners from the life sciences industry, the DDA will also through the networking and collaboration activities, set up events focusing on career opportunities that the life sciences industry offer.

In conclusion, the DDA has during 2019 established itself as a national hub for the diabetes research community with an endorsed and highly varying networking and collaboration programme with attendance of national and international junior and senior researchers from academia, hospitals and the life sciences industry. In addition, the DDA-funded researchers reported 66 unique collaborations with a majority of these in Denmark, USA, UK, Australia and Germany. In 2020, the DDA will retain its strategic focus, as described above, but also attach special attention to the above-mentioned focus points.

Recruitment and Grant Activities

The overall aim of the DDA Recruitment and Grant Activities is to recruit outstanding national and international PhD students, postdocs and visiting professors with an international, interdisciplinary and cross-sectional focus within the field of diabetes.

The DDA's ambition is that the DDA-funded researchers obtain national and international recognition for their research, i.e. publications in high-impact journals and awards, and that the DDA visiting professors strengthen the research environment in Denmark.

This ambition should be achieved through bi-annual calls in open and free competition with a transparent application and review process involving external review by international peers with high scientific expertise within a broad range of diabetes-related research.

Strategic Focus 2019

The strategic approach in 2019 for the Recruitment and Grant Activities involved five main elements.

Firstly, an open call posted through the DDA communications channels (website, newsletter and social media), national and international job portals and e-mails sent directly to national and international research institutions and collaborators.

Secondly, a three-peer review of all eligible applications performed by the DDA's international Committee for Talent Development and based on a careful match of the peers' scientific expertise and the research topics described in the applications. This ensured a high scientific, in-depth and high-quality assessment of all applications.

Thirdly, a quality check of the peer review evaluations conducted by the two chairmen of the Committee for Talent Development, who also ensured and provided a second opinion where major discrepancies between reviewers' evaluations were observed.

Fourth, a decision by the Board of Directors on allocation of grants based on a prioritised list made by the two chairmen of the Committee for Talent Development and subsequently information of applicants with grant or rejection letters including the three peer reviewers' comments to the application. This provided the candidates with the opportunity to improve a rejected application for a future call for applications for DDA grants.

Fifth, public dissemination of grant allocations through the DDA communications channels, national newspapers and e-mails sent directly to national and international research institutions and collaborators. Finally, invitations to all grant recipients to attend a mandatory 1.5-day course to ensure cohesion within the newly recruited group of DDA-funded researchers and create a connection between the recruited DDA-funded researchers and the DDA.

Recruitment and Grant Activities 2019

- In 2019, the DDA granted a total of 34 grants:
- 13 PhD Scholarships (12 2/3-financed and one 1/3-financed)
- 11 postdoc fellowships
- Four visiting professorships
- Four industrial PhD Scholarships (1/3-financed)
- Two industrial postdoc fellowships (one 1/3 financed and one financed by AstraZeneca/MedImmune)

The 2019 grant allocation included (i) a distribution of funding across research institutions in Denmark (ii) a high variety of topics and research disciplines within basal, epidemiological, clinical and translational research; and (iii) collaboration with the life sciences industry in relation to industrial PhD scholarships and industrial postdoc fellowships.

Figure 6 shows the distribution of grants allocated by the DDA in 2019 according to grant type. Further information about the grant recipients and their projects can be found at the DDA website: www.danishdiabetesacademy.dk/dda-funded-researchers

Figure 6. The figure shows the distribution of grants allocated by the DDA in 2019 according to grant type.

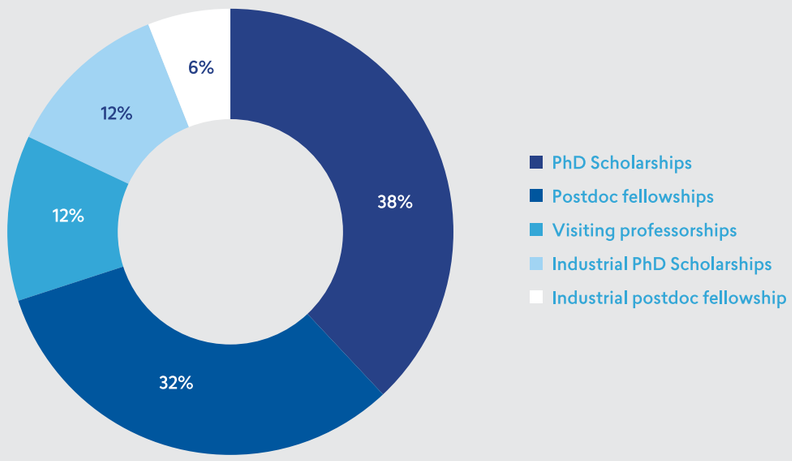


Figure 7a-d shows the distribution of grants according to host institution.

As displayed in **Figure 7a-d**, the majority of PhD scholarships were allocated to students enrolled at Aarhus University, Faculty of Health Sciences (five), and University of Copenhagen, Faculty of Health and Medical Sciences (five) (**Figure 7a**), whereas the majority of postdoc fellowships were allocated to postdocs employed at University of Copenhagen, Department of Biomedical Sciences (three) (**Figure 7b**). Due to the low number of grants for industrial PhD scholarships and postdoc fellowships (**Figure 7c**) and visiting professorships (**Figure 7d**), an overall conclusion about the distribution of these grants cannot be made.

Figure 7a. The figure shows the distribution of grants for PhD scholarships allocated by the DDA in 2019 according to host institution. The success rate of 2/3-financed PhD scholarships was 10.8%.

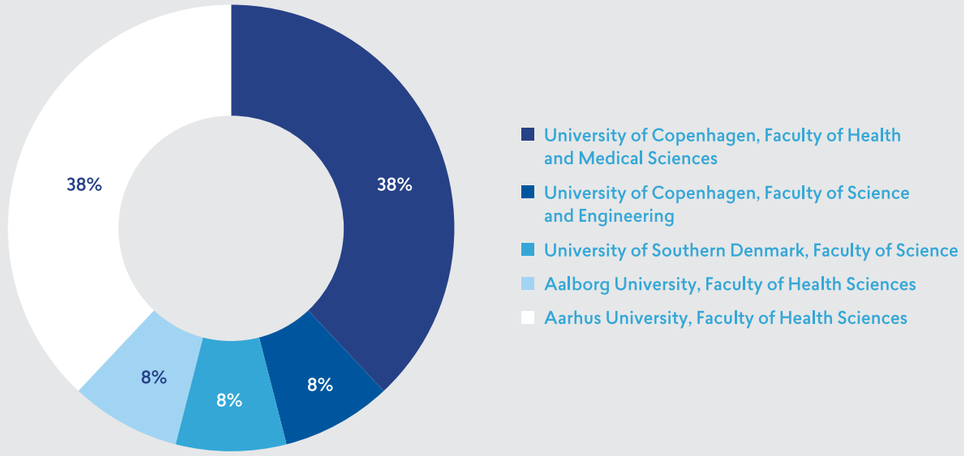


Figure 7b. The figure shows the distribution of grants for postdoc fellowships allocated by the DDA in 2019 according to host institution. The success rate of applications for two- and three-year postdoc fellowships was 16.9%.

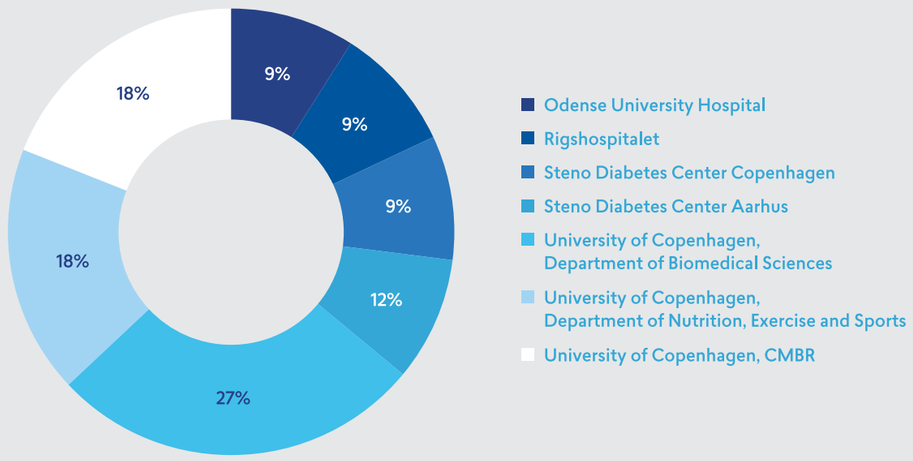


Figure 7c. The figure shows the distribution of grants for industrial PhD scholarships and industrial postdoc fellowships allocated by the DDA in 2019 according to host institution.

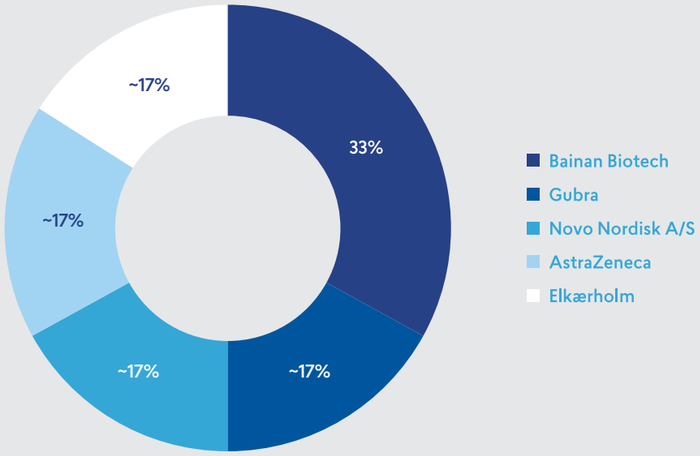
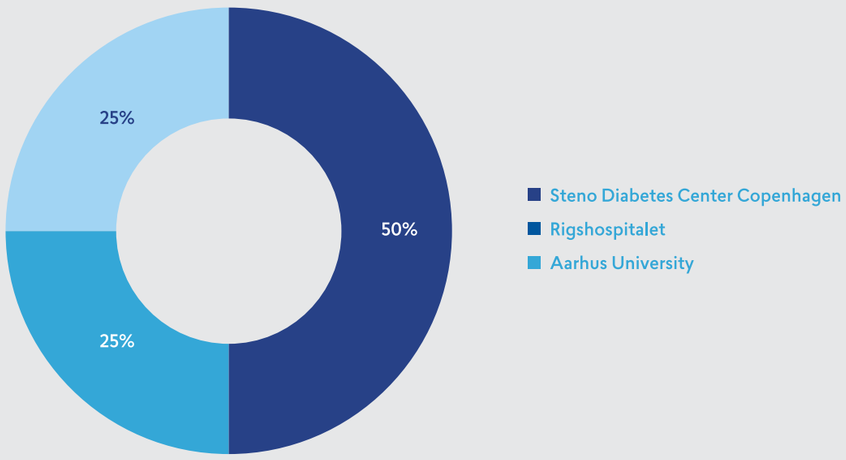


Figure 7d. The figure shows the distribution of grants for visiting professorships allocated by the DDA in 2019 according to host institution. The success rate of applications for visiting professorships was 66.7%.



The allocation of the PhD scholarship to Christopher Rohde, MD, Aarhus University, with the project title *The impact of treatment with antidepressants on the course of type 2-diabetes* and the postdoc fellowship to Linn Gillberg, PhD, MSc, Rigshospitalet, with the project title *Metabolic and epigenetic changes after adjuvant chemotherapy in patients with early breast cancer* are two excellent examples of the variety of topics and disciplines of the allocated grants.

Christopher Rohde will investigate the effect of antidepressants on glycaemic control, health-style related behaviours, mortality and major diabetic complications in individuals with type 2-diabetes through the usage of national registers and databases and with advanced epidemiological methods. The hope is that the results can aid clinicians in preventing complications and premature deaths among individuals with type 2-diabetes and comorbid depression.

Linn Gillberg will in her postdoc project build a bridge between clinical and basic biomedical research by linking clinical markers and biological properties in blood and fatty tissue samples. Specifically, Linn Gillberg will study genetic changes in blood samples and investigate the fatty tissue for molecular changes, focusing on metabolism, energy production and inflammation from 80 women with breast cancer before and after chemotherapy and relate the findings to patients' metabolic health. The hope is that the finding in the future will help doctors obtain knowledge on how to prevent women from developing type 2-diabetes following breast cancer.

The allocation of an industrial PhD scholarship to Elkærholm is an example of how the DDA has built a bridge between academia, hospitals and the life sciences industry through grant allocations. This industrial PhD scholarship with the project title *Aronia as a part of the type 2-diabetes treatment regimen* will be carried out by PhD student Christine Bodelund Christiansen, MSc, who is enrolled at Aarhus University. Christine will in a collaboration between Aarhus University and the company Elkærholm investigate aronia berries – often called the healthiest berries in the world – to find out whether individuals with type 2-diabetes of the future can benefit from taking aronia berries, and in what form.

Other examples of the DDA Recruitment and Grant Activities in 2019 can be found on page 46 – 47 and 48 – 49.

A reusable insulin needle for making it easier to be a diabetes patient

Industrial PhD scholarship grant to MSc Sofia Wareham Mathiassen, Novo Nordisk A/S, enrolled at University of Copenhagen, Faculty of Health and Medical Sciences

In this industrial PhD project Sofia Wareham Mathiassen will in collaboration with Novo Nordisk A/S try to develop an insulin needle that can be reused up to 50 times. This will both have a positive impact on the everyday life of patients and be environmentally friendly.

It has become known that some diabetes patients reduce the hassle of administering insulin by reusing needles, which are produced for single use only. However, the needles often become bent and change shape when the cap is put back on, and therefore they are not suitable for reuse. A deform needle can be both cumbersome and painful to use. For some this means that they refrain all together from administering their insulin, and as a result they do not get the medicine vital to them.

“What we would like to do with Sofia´s PhD dissertation is to find a system that functions so well on both a microbiological and mechanical level that you can reuse the needle several times if it has only been in contact with skin and has been looked after”, Henrik Bengtsson, Principal Specialist at Novo Nordisk says.

Three Phase Trial

The project is divided into three phases, Sofia Wareham Mathiassen elaborates, who is a medico engineer and has been affiliated with Novo Nordisk A/S since she wrote her thesis on this exact topic.

In the first phase, it is all about finding out which bacteria people with diabetes have on their skin and which are on the needle. Hereby one knows which bacteria one must put an effort towards protecting the injection needles against. The second phase is very much about examining the anti-microbiotic technologies and their efficiency in relation to varying humidity and temperatures, while phase three is implementing the technologies in the reusable needle.

For Sofia Wareham Mathiassen it is a great motivational factor that her PhD project is so closely related to patients and that there, within a reasonable timeframe, could be a new product ready for people with diabetes.

However, she is still a realist. “It means a lot to me that my PhD project is not just a “shelf-project”. But in science an array of things can go wrong so nothing is certain. If you for example have exactly seven test items and two of them go wrong, then you only have five good ones and it is hard to get enough material. There is also a risk of it taking a long time before I am shipped needles that are coated correctly”, she says.

“In an environmental aspect, the needle that we are hoping to develop will also have the advantage of being environmentally friendly. There will be less material to discard of when both needle and cap can be reused up to 50 times”, Henrik Bengtsson says.

Problems in childhood increase your risk of developing diabetes as an adult

Luke Johnston, MSc, PhD, Postdoc, Steno Diabetes Center Aarhus, who was granted a three-year postdoc fellowship is looking into the reasons why some adults develop diabetes, and at the same time envisions a society in which not too many people have to 'swim in toxic waters'.

If you go hungry as a child, your risk of developing diabetes as an adult increases by about 60%. If you are neglected or lose one of your parents, for example, your risk of developing diabetes increases by up to 50%. And quite a lot of people are vulnerable, even here in Europe, where approximately one in three European children experiences mental or physical abuse.

A new research project at the Steno Diabetes Center in Aarhus is looking into the reasons why this lack of well-being manifests as a disease. 'We can only prevent it when we know the mechanisms behind it', says Dr Luke Johnston.

Denmark is a gold mine to work in as a researcher

Some of the specific answers Luke is looking for are the effects on the risk of developing type 2 diabetes for people whose parents get divorced, have severe financial problems, or are immigrants. And there is a huge amount of data to work with: databases with information on the finances, health, divorces, parents' education, children's hospital admissions, recent immigration and parents' health status for all Danes. It is even possible to find information about economic problems in their neighbourhoods.

'With so many good records available, Denmark is a gold mine to work in as a researcher. Had I conducted this research in Canada, I would have had to gather a lot of information myself and it would have been difficult to find a representative sample', Luke says.

The great amount of data in the Danish system also makes it possible to supplement his research with another goal: together with colleagues from the University of Potsdam in Germany and from Harvard in Boston, USA, he will develop technologies that optimise analysis methods for such large and complex health data. These technologies will later be made available to all other researchers.

Cities and communities should be designed differently

The objective of his current research is initially to find out what is happening in our bodies—but in the long term Luke's dream is to influence society and get politicians to take the initiative to have cities and communities designed in such a way that makes it easy for us to move around and eat a healthy diet.

'I hope my research can contribute to preventing disease by making healthy choices the easiest option, as healthy food, quality sleep and low stress levels can provide much more health than medicine', he says.

Reflections and Future Focus

The future focus of the DDA Recruitment and Grant Activities is based on feedback and suggestions from the DDA committees and boards in 2019. These indicate the following main focus points: (i) maintain the open, free and transparent competition of all DDA grants; (ii) increase the variety of expertise within the Committee for Talent Development; (iii) continue to encourage applications from more mobile candidates; (iv) continue to bridge the gap between the life sciences industry and junior researchers from academia and hospitals through industrial PhD and industrial postdoc grants; and (vi) increase the interest in the visiting professorship scheme.

The open, free and transparent competition in relation to the DDA grants allocation is a trademark and has received excellent feedback from the scientific community. In particular, the usage of international scientific peers of the highest calibre in the review process is considered as a seal of approval as it ensures an independent assessment from leading experts. Another appreciated aspect is the passing on of the reviewers' comments and evaluations to all applicants as this provides candidates with an opportunity to either improve a successful application or to improve a rejected application for a future call for applications for DDA grants. This process will continue in 2020.

Although the actual number of submitted applications within qualitative and technology research is relatively low, it is expected to increase for future calls. This fact has encouraged the Board of Directors to invite the diabetes research community in Denmark to recommend additional members with qualitative and technological expertise to the Committee for Talent Development to achieve a better balance of the expertise within the committee.

Feedback from the International Advisory Board and the reviewers in the Committee for Talent Development has once again raised the flag for the lack of mobility of Danish applicants. The DDA will continue to encourage applications from more mobile candidates and continue stressing in the call that mobility, including plans for stays abroad, will be scored positively by the reviewers.

Even though the DDA succeeded in allocating industrial PhD scholarships and industrial postdoc fellowships, there is room for improvement. In 2019, the DDA employed a two-step process for the DDA industrial grants, which only allowed applications from candidates, who had already received funding from the Innovation Fund Denmark. As a consequence, the DDA received relatively few applications for industrial PhD scholarships and postdoc fellowships. This setup will be replaced, and the DDA will instead adopt the same strategy for the industrial grants as adopted for the regular DDA grants.

Even though, the DDA visiting professorship scheme has proved to be quite successful, giving rise to excellent collaboration between national and international research groups and followed by outstanding scientific publications of high quality, relatively few candidates applied for this scheme in 2019. Therefore, the DDA will increase the advertising of these grants through distribution of newsletters or marketing e-mails among the DDA international network.

In conclusion, the DDA has retained its overall strategy for the Recruitment and Grant Activities in 2019 with a high-quality, transparent and well-governed recruitment process including international peer review. In 2020, the DDA will continue to follow this strategy and also adopt this strategy for the allocation of industrial grants. The DDA will also focus on allocating grants to more mobile candidates and receive more applications for the industrial grants and the visiting professorship scheme.

Scientific Publications, Dissemination and Further Funding

The DDA's ambition is that the researchers receiving grants for PhD scholarships, postdoc fellowships and visiting professorships are outstanding with an international, interdisciplinary and cross-sectoral focus. This is, among others, demonstrated by the researchers' publications, dissemination activities and their abilities to obtain further funding for their research.

Scientific Publications

DDA-funded researchers reported publications attributed to the DDA grant and earlier funding. A total of 35 unique numbers of publications were reported. The majority of these were peer-reviewed publications (91%) and the remaining included book chapters, letters and editorial comments by the group. **Figure 8** shows the scientific publications reported by DDA-funded researchers in 2019.

Dissemination Activities

DDA-funded researchers reported different types of dissemination activities outside academia on the DDA grant. **Figure 9** shows a total number of 91 dissemination activities with most talks at conferences, participations in workshops and participations in formal working group, expert panels or dialogues.

Further Funding

DDA-funded researchers also reported any further funding received based on their grants from the DDA. This analysis showed 28 reports of further funding, including further funding to the project, scholarship, fellowship and travel awards corresponding to a value of 12 million DKK in total. Additional information on the funding reported by DDA-funded researchers can be seen here.

In conclusion, DDA-funded researchers published 35 unique numbers of publications. As publications take time to produce and the first DDA scholarships, fellowships and visiting professorships were granted in the end of 2018, the number of publications and dissemination activities is expected to increase in the years to come. In addition, DDA-funded researchers reported further funding of 12 million DKK in total.

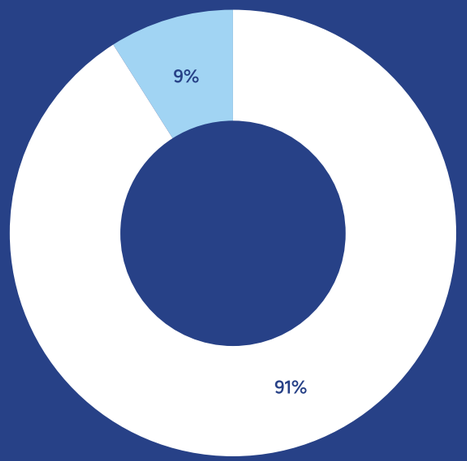


Figure 8. The figure shows the number and type of scientific publications reported by DDA-funded researchers in 2019, including percentage of peer-reviewed publications.

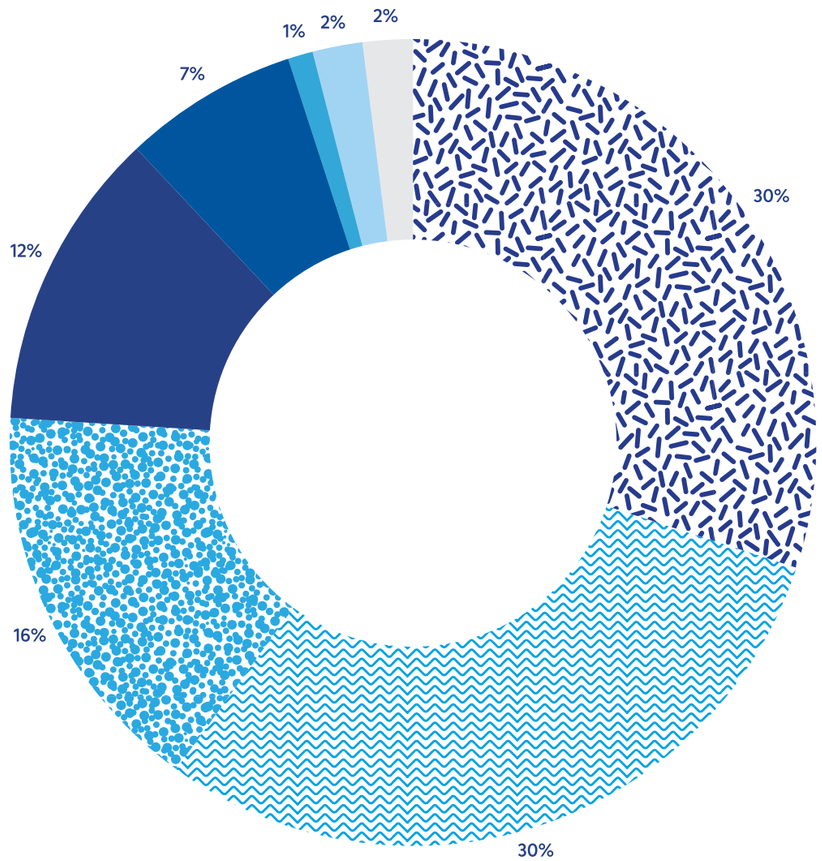


Figure 9. The figure shows the distribution of dissemination activities reported by DDA-funded researchers in 2019 according to type of dissemination (percentage of all activities).

Closing remarks

The DDA has made a huge effort during 2019 to consolidate its position as a national hub in diabetes research. In particular, a strong and fruitful collaboration with national and international researchers from academia, hospitals and the life sciences industry has resulted in highly rated educational, networking and collaboration activities. It should be emphasised that the DDA will prioritise to build an even closer and stronger collaboration with the life sciences industry to highlight the career opportunities for junior researchers to shift from employment at a university to a position in a life sciences company.

A trademark of the DDA is the transparent application and review process including an open and free call and involving external review by international peers with high expertise. In 2020, the DDA will continue to grant scholarships, fellowships and visiting professorships. The DDA will also prioritise to bridge the gap to the life sciences industry offering junior researchers from academia and hospitals an opportunity to work in the private sector.

In 2020, we hope to see a substantial increase of peer-reviewed and innovative publications in high impact journals by DDA-funded researchers. We also hope that DDA-funded researchers will continue to engage in other kinds of dissemination and communication of their research and will receive further recognition of their research, such as further funding and awards.

The DDA is now at a point where it can begin to capture the wider impact and influence of its work over the past years. The DDA will therefore begin the process of developing an impact strategy to capture the effect of the DDA's activities within Education and Talent Development, Networking and Collaboration and Recruitment and Grants.