


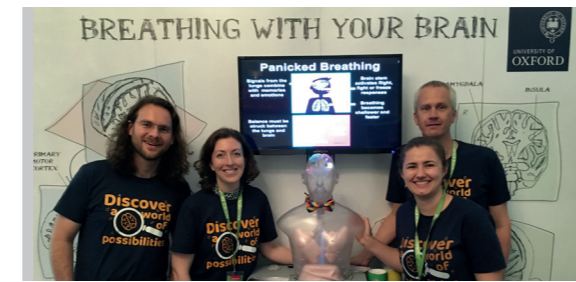


STATISTICS FOR 2019

 <p>338 GRANTS</p>	 <p>114 FUNDING BODIES</p>
<p>£106.7m TOTAL GRANT VALUE</p>	
<p> RESEARCH TURNOVER £18.2m</p>	
<p>£13.5m NON-RESEARCH TURNOVER</p>	

<p>10 MAJOR MEDIA FEATURES</p>	<p>21 PUBLIC ENGAGEMENT ACTIVITIES</p>	<p>212k WEBSITE USERS</p>
<p> 726 PUBLICATIONS</p>		
<p>83 Support staff</p>	<p>278 Research Staff</p>	<p>92 DPhil students</p>
<p>27 Associate Professors</p>	<p>30 Professors</p>	<p>295 Honorary Agreement Holders</p>



Breathing with your brain

In July our Breathe Oxford group headed to the Royal Society Summer Science Exhibition to showcase their research on the brain's role in breathlessness. A specially commissioned working model of the brain and the lungs was the centrepiece of an activity-packed stand which attracted thousands of visitors at this prestigious event.

www.medsci.ox.ac.uk/breathing-with-your-brain



Research leads to drug discovery programme for treating pain

LifeArc, one of the UK's leading medical research charities, has signed a deal to license an ion channel drug discovery programme to Daiichi Sankyo Company, Limited. The licensing deal successfully concludes a research collaboration between LifeArc, the University of Oxford's Nuffield Department of Clinical Neurosciences and Daiichi Sankyo. Small molecules, optimised as part of the programme, are capable of affecting the sensitivity of neurons, show efficacy in treating pain and will undergo further pre-clinical development.

www.ndcn.ox.ac.uk/news/research-results-in-drug-discovery-programme-for-pain-treatment

Staff development

This year our Athena SWAN Silver Award application involved a thorough self-assessment of gender equality across the Department. From recruitment, induction and career progression, to the visibility of role models, committee representation and participation in outreach, this process has resulted in an ambitious set of actions for the next five years to ensure that NDCN is a place in which all can thrive. Demonstrating our ongoing commitment to developing our staff, we held a personal presence and impact workshop for seven early career researchers in July and were recently awarded funding from the University's Diversity Fund to pilot an exciting new sponsorship scheme for women.


www.ndcn.ox.ac.uk/about/staff-development



Oxford partners with Quinnipiac to improve neuro-rehabilitation

The delivery of clinical care, research, and education in neuro-rehabilitation in Oxford is being revolutionised by an innovative partnership with Quinnipiac University, Hartford, USA. Money from Quinnipiac University, Trinity Health New England, and Oxford University Hospitals NHS Foundation Trust is funding a five-year medical student exchange programme. This initiative was negotiated by our Director of Clinical Neurosciences Undergraduate Education, Dr Gabriele de Luca.

www.ndcn.ox.ac.uk/news/oxford-partners-with-quinnipiac-to-improve-neuro-rehabilitation



NUFFIELD DEPARTMENT OF CLINICAL NEUROSCIENCES

Annual Report 2019

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NUFFIELD DEPARTMENT OF CLINICAL NEUROSCIENCES

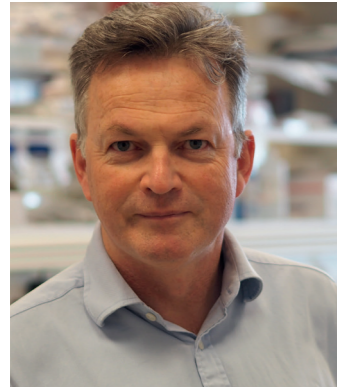
We host world-leading programmes in basic, translational and clinical neuroscience teaching and research. Our integrated approach allows for the swift transfer of basic biomedical findings to the clinical setting. We deliver evidence-based therapies of high impact for the benefit of society and the economy.



Annual Report 2019



From the Head of Department



The past year has seen the continuing expansion of all areas of the department and a number of outstanding success stories. Our growth is built on our ability to attract and retain exceptional early career researchers, who recognise that NDCN is a place where they can flourish personally and develop their scientific careers around some of the most important biological problems of our time.

Although we are a clinical department dedicated to improving the lives of those with disorders of the brain, our research is built on the foundations of basic neuroscience. Our principal investigators regularly appear in the list of the most highly cited scientists in their respective fields. Combined with a strong public engagement programme, this means our impact internationally remains very significant. We are committed to welcoming the best scientists to NDCN from all corners of the world and in particular to maintaining our strong links to our closest neighbours in Europe.

I would like to pay tribute to Professor Irene Tracey, who has led NDCN with great skill and wisdom over the last four years, inspiring us with her characteristic energy and optimism. She has created a real sense of unity and forward motion. We are delighted that she will remain as a member of NDCN with her scientific programme in pain and anaesthetic mechanisms. It is my great privilege to be taking over from Irene as Head of Department. We wish her every success in her new role as Warden of Merton College, Oxford.

We are now in an era when clinical neuroscience is poised to undergo a revolution in molecular therapy. A number of groups in NDCN are engaged in clinical trials at the cutting edge of genetic and molecular therapies. Professor Robert McLaren's work on gene therapy for rare and common eye disorders is a particular highlight, and even got a mention on the steps of Number 10 Downing Street earlier this year!

We are delighted that, thanks to new funding including a generous grant from the Wolfson Foundation, the Centre for the Prevention of Stroke and Dementia has now been relocated in a wonderful new building, allowing the CPSPD to further develop its highly influential work which has had a major impact in the management of stroke. The Wolfson Building will also house groups from the Wellcome Centre for Neuroimaging.

As ever, we are grateful to the many funders who allow our work to flourish, from the Research Councils, disease-specific charities and, importantly, individual donors who are inspired by what we do and wish to join us in making a difference.

Professor Kevin Talbot

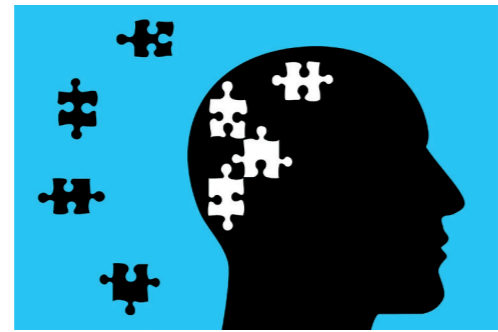
The Year in Highlights



New boost for stroke and dementia research

Our Centre for the Prevention of Stroke and Dementia moved into its brand new purpose-built premises this year. It is known as the Wolfson Building after its major funder. Now that the facility is up and running, the research is starting to attract more funding. The Masonic Charitable Foundation has provided £126K for one 3-year clinical research fellowship starting in January 2020.

www.ndcn.ox.ac.uk/news/masonic-charitable-foundation-fund-studentship-at-centre-for-the-prevention-of-stroke-and-dementia



Insight into risk of dementia after stroke

Risk of dementia after stroke is a major concern for patients and carers. Our researchers turned to data from the long-running Oxford Vascular Study to see what they could find out. The incidence of dementia was nearly 50 times higher in the year after a major stroke compared with that in the general population, but excess risk was substantially lower after transient ischaemic attack and minor stroke. Several independent predictors of dementia were identified and a clinical risk score is now being validated.

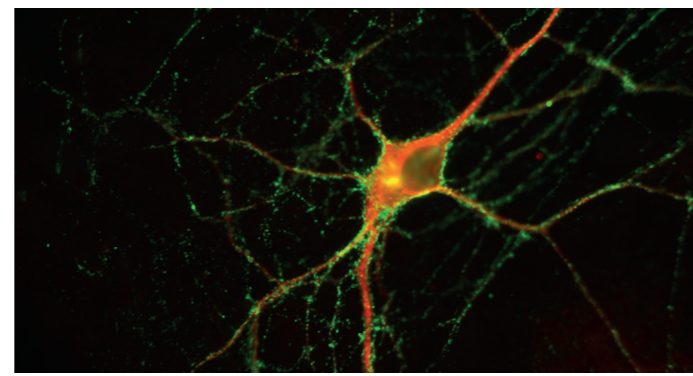
www.ndcn.ox.ac.uk/news/risk-of-dementia-after-tia-or-stroke



How we respond to harmful stimuli

Researchers in our Neuropathic Pain Group carried out a comprehensive assessment of congenital pain insensitivity due to sodium channel NaV1.7 loss of function. This work and studies on NaV1.7 gain of function raise important questions about how channelopathies produce disease.

www.ndcn.ox.ac.uk/news/more-insights-gained-into-the-sensory-nervous-systems-response-to-certain-harmful-or-potentially-harmful-stimuli



Detecting autoimmune encephalitis

Patients with this condition typically present with psychiatric features, often before any neurological features appear. This means that sometimes patients can enter and continue down psychiatric pathways, which are not usually optimised for the care of patients with encephalitis. Our researchers found that patients with NMDAR-antibody encephalitis presented with a complex co-existing mix of mental state changes which are best described by mixing traditional psychiatric diagnoses. Their findings emphasise the need for professionals to be detailed and clear when describing and reporting mental states. This should encourage the accurate detection of this form of autoimmune encephalitis and differentiate it from other serious mental-health illnesses.

www.ndcn.ox.ac.uk/news/nmdar-antibody-encephalitis-a-new-clinical-way-to-identify-patients



World's first gene therapy operation for common cause of sight loss

Professor Robert McLaren carried out the world's first gene therapy operation to tackle the root cause of age-related macular degeneration (AMD), the UK's most common cause of sight loss. The procedure was carried out with the support of the NIHR Oxford Biomedical Research Centre in a clinical trial sponsored by Gyroscope Therapeutics, a UK-based company developing genetically defined therapies for the treatment of eye diseases. If successful, the treatment could have a beneficial impact on patients' quality of life and their ability to remain independent.

www.ndcn.ox.ac.uk/news/world2019s-first-gene-therapy-operation-for-common-cause-of-sight-loss-carried-out



Ocular oncologist joins our department

Bertil Damato has been recruited to oversee the provision of clinical care to patients with an ocular tumour and develop a research group to focus on ocular melanoma and other eye tumours. The Oxford Ocular Oncology Research Group is devising novel methods for educating optometrists and general ophthalmologists on ocular tumour diagnosis, and exploring opportunities for harnessing advances in artificial intelligence.

www.ndcn.ox.ac.uk/news/ndcn-welcomes-ocular-oncologist

Heart rate rise and blood pressure drops during pregnancy

New analysis suggests that physiological changes during pregnancy may not be as dramatic as traditionally taught. However, blood pressures do appear to be increasing year on year. This study led by Peter Watkinson challenges the widely held view of the expected changes to vital signs during pregnancy. This highlights the importance of evidence-based medicine to support and plan clinical care. Evidence-based early warning scores specific to pregnant women are urgently needed and this study should inform their development.

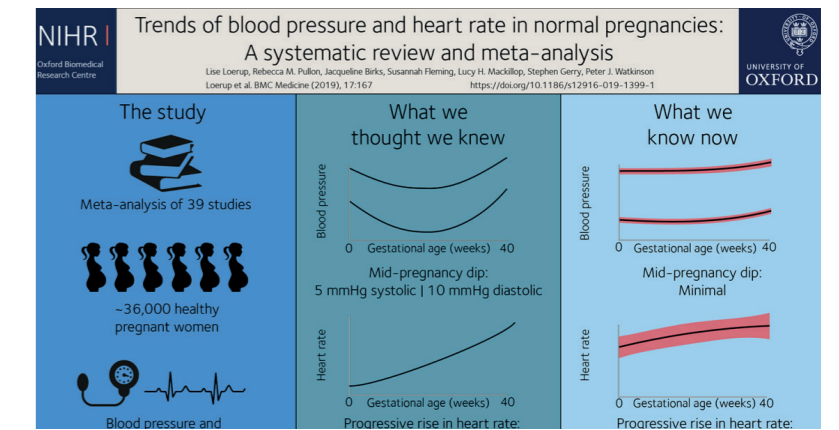
www.ndcn.ox.ac.uk/news/heart-rate-rise-and-blood-pressure-drops-during-pregnancy-are-not-as-dramatic-as-previously-thought



Brain architecture and left-handedness

A new study involving researchers from our Wellcome Centre for Integrative Neuroimaging for the first time identified regions of the genome associated with left-handedness in the general population and linked their effects with brain architecture. The study linked these genetic differences with the connections between areas of the brain related to language. It demonstrated that left-handedness is a consequence of the developmental biology of the brain, in part driven by the complex interplay of many genes.

www.ndcn.ox.ac.uk/news/researchers-identify-genetic-regions-associated-with-left-handedness-and-link-them-with-brain-architecture-in-language-regions



White matter pathways linked to strength of communication between brain regions

The degree to which functional connectivity between brain regions is affected by the properties of white matter pathways is a fundamental question in neuroscience. Our researchers interrogated UK Biobank data to discover whether features related to white matter microstructure (diffusion MRI) can predict the synchrony of functional MRI activity in the regions a given pathway connects. They found that microstructure-function relationships are a general property of the brain, and revealed that these relationships are specific and reproducible. The team also discovered a unique genetic profile for these relationships, via a genome-wide association study of the function-microstructure prediction for each region.

www.ndcn.ox.ac.uk/news/research-confirms-link-between-brain2019s-white-matter-pathways-and-strength-of-communication-between-brain-regions

