Forward-thinking neuroscience

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Could you briefly outline the core aims of the European Brain Council (EBC)?

EBC is an organisation that represents the interests and needs of patients with brain disorders, medical practitioners and researchers centring their efforts on neurological conditions and brain function in general. In particular, we advocate for increased focus to address the huge personal and economic costs for people affected by brain disorders. We can improve the lives of these individuals by conducting more research and fighting the stigma associated with brain and mental health ailments. Furthermore, it is important for EBC to underline to the policy makers that investing in neuroscience is worthwhile, as brain research is highly cost-efficient and beneficial to society.

Why did you choose to focus your research on the brain? How has your background as an expert in neuropsychopharmacology led you to your role as President?

I have long had a fascination for brain issues, starting as a child when I worked out that the brain was the key to understanding everything we thought we knew. This was consolidated by visiting the lab of Dr Grey Walter, the inventor of the first human-computer interface and a pioneer of electroencephalography (EEG) measures. I went to the University of Cambridge, UK, to study neuroscience, but immediately switched to the medical course when I realised that to pursue my research ambitions in human neuroscience, it would be easier if I were a doctor. Since then, I have worked largely in research – first at Guy’s Hospital in London, then the University of Oxford, UK, the National Institutes of Health (NIH) in the US, and subsequently at the University of Bristol, UK. Six years ago, I moved to Imperial College London to make use of the outstanding brain imaging facilities at the Hammersmith Hospital, where I have access to state-of-the-art positron emission tomography (PET) and magnetic resonance imaging (MRI) research systems.

Currently, my main research interest is in the role of neurotransmitters and their receptors in brain function in alcohol, opioid and gambling addiction, as a means to discover new treatment interventions particularly targeted for people to maintain abstinence. I also campaign strongly for science to direct public policy in the fields of psychiatry and addiction and for the reform of the international drug conventions to facilitate research; this latter work resulted in my being awarded the John Maddox Prize for Standing up for Science in 2013.

I was delighted to become President of EBC in 2013, as I have worked for over 15 years for the European College of Neuropsychopharmacology trying to realise the immense potential of Europe in terms of research and medical innovation in brain disorders and their treatments.

The cost of brain disorders in Europe exceeds €793 billion yearly. How is EBC addressing this staggering challenge to public health and the economy?

Unfortunately, there is much stigma surrounding brain disorders, which might be one of the reasons why they receive very little attention among decision makers. However, if we continue to avoid the issue it will continue to grow. Therefore, EBC educates policy makers and funders about the great need for investment in treatment and research, and the numerous benefits of allocating funds to this field. Many people suffering from a mental disorder are not able to work due to their condition. However, with the right treatment and support, their quality of life can improve drastically and they can return to employment. This is also pertinent to lessening the burden for family members who have dedicated much of their lives to providing care for those affected.

What have been some of the Council’s most fruitful partnerships in the past few years?

EBC is a successful network in itself given the many different partners around the table (patients, scientists, professionals and industry). However, EBC has also had beneficial partnerships at many levels with the external world: institutions (European Parliament and European Commission, mainly), stakeholders, and projects (many of which are under way – visit www.europeanbraincouncil.org/projects for more details).

More specifically, I can mention that EBC has partnered with the Polish Presidency to the European Union (EU), which resulted in the brain being one of the priority areas for action during the presidency. A presidential conference was co-organised by EBC, the Polish Health Ministry and the European Commission’s Directorate General for Health and Consumers. Another example is EBC partnering with DG Research in devising and implementing the European Month of the Brain in May 2013.

How is EBC involved with European Commission activities?

EBC continuously offers information and advice to European institutions in order to help ensure that the implementation of brain research is in line with the perspectives of scientists and patients. This involves providing hard evidence through our studies: Cost of Disorders of the Brain in Europe, Consensus Document on European Brain Research, Resource Allocation to Brain Research in Europe, and partnering in initiatives such as the European Month of the Brain as well as other European Commission initiatives like Joint Programming on Mental Health.
DEPRESSION:
Depression is a common, serious and in some cases life-threatening condition that more than 350 million people of all ages suffer from worldwide. According to the World Health Organization (WHO), depression is the leading cause of disability. It is also the most predominant mental health problem among working-age patients. Studies have shown that depression among employees represents a huge cost to the workplace. Many people with the condition are often never diagnosed, or diagnosed at a very late stage. Furthermore, many of those affected do not tell their manager and/or colleagues about their depression due to the stigma that surrounds it. Industry costs connected with depression are mainly due to presenteeism, the loss of output due to work impairments, and not just absenteeism, the period the employee is absent. Therefore, more focus on depression in the workplace will benefit both those affected and their employers – a classic win-win.

DEMENTIA:
Dementias, and Alzheimer’s disease in particular, have vast social and economic implications. There is no treatment currently available to cure dementia or to alter its progressive course. The condition is overwhelming for the families of those affected and their caregivers. Physical, emotional and economic pressures can cause great stress to all involved, and support is required from the health, social, financial and legal systems. Despite no treatments or cures currently being available, much can be done to support and improve the lives of patients, their families and caregivers. An appropriate and supportive legislative environment is required to ensure the highest quality of service provision to those affected by dementia, and public and private efforts need to be strengthened to improve care and support for people living with the disease.

THE YEAR OF THE BRAIN:
A programme of education about the brain and its disorders, the Year of the Brain has support from over 200 groups, which include patient, clinical and industry organisations. It runs over the 2014-15 academic year and highlights the needs of the millions of Europeans currently affected by brain diseases, while raising awareness of the importance of nurturing and protecting our most vital asset – the brain. More specifically, the Year of the Brain has three objectives: to educate society about how to nurture and protect the brain and prevent brain diseases; to improve care and treatment access for those affected by brain diseases; and to increase investment in brain-related R&D for the benefit of future generations.

STROKE PREVENTION:
Suffering from a stroke can have huge consequences, as brain cells die due to lack of oxygen. The location of the stroke within the brain will determine whether it will have minor or major consequences. Therefore, we are working on increasing awareness surrounding prevention, especially as few people know that strokes can be prevented.

ALCOHOL ADDICTION:
Within the EU, 14.6 million people are affected by alcohol dependence, and 195,000 premature deaths are caused by excessive use of alcohol. It is estimated that alcohol consumption causes up to 60 different diseases. Alcohol dependence does not only come with great personal consequences, it also represents a huge burden on society and has immense consequences to the families of those suffering from an alcohol use disorder. An integrated and comprehensive strategy is required to reduce the health and social burden caused by harmful alcohol consumption.
Could you discuss the roles of National Brain Councils (NBCs) and National Action Groups (NAGs)?

Setting up NBCs and NAGs, and cooperating with existing ones, has been one of EBC’s main foci since its creation. This network of national focal points for EBC has often been instrumental in our dealings with EU officials and policy makers in Brussels, Belgium, as we can pursue a country-specific approach, which is far more effective. Most importantly though, the NBCs can exert an influence at the national level, in order to raise the priority that the brain is given in national policies and educate the society on economic and human costs of brain disorders. This is of particular importance in view of the limited prerogative of EU in the field of public health.

Are there any recent projects led by the Council that you would like to highlight as notable successes?

The Cost of Disorders of the Brain in Europe 2010 clearly shows the monumental economic impacts that brain disorders have on European societies. It is always easier to convince policy makers that a cause is important if you can get a big return on your investment. It is not because politicians don’t think about quality of life, but they only have a certain amount of money to spend – especially after the financial crisis – and many people are trying to convince them that their cause is the most important. Therefore, it is helpful to our cause to be able to provide a report that demonstrates the facts related to the economic costs of brain disorders. Furthermore, much of the expenses connected with brain disorders are indirect, which is why brain disorders look less expensive (in an economic sense) at first glance.

What are the most daunting challenges faced by neuroscience researchers?

The recession, increased costs of research and the uncertainty of career funding for young researchers. As mentioned earlier, it is important that we invest in research of the brain; however, this is made even more difficult if we cannot attract the best researchers to the EU and to the field. Furthermore, many of the major pharmaceutical companies have withdrawn from the brain area, which has caused the loss of hundreds of R&D jobs and millions in research investment; causing an even bigger brain drain within our discipline.

Where is neuroscience funding most needed at present?

Funding is needed to gain a better understanding of brain circuits that underpin psychiatric disorders, focusing on new treatment targets, improved technology access – particularly PET imaging for measuring brain neurotransmitters in disease states where there are no obvious structural abnormalities – and for translational medicines research that moves from bench to bedside.

Can you discuss some of the most recent accomplishments in the field?

Specific examples of great discoveries are the Nobel Prize in Physiology or Medicine winners in 2013 and 2014. The 2013 Nobel Prize winners (James E Rothman, Randy W Schekan and Thomas C Südhof) received the prize on the basis of their discoveries of how cargo is delivered within and outside the cell with timing and precision. This is an important discovery as several neurological and immunological disorders experience a defect in vesicle transport.

The 2014 Nobel Prize winners (John O’Keefe, May-Britt Moser and Edvard I Moser) have shown important findings on how we recognise a place and navigate around it using the hippocampus and entorhinal cortex. These are affected at an early stage with Alzheimer’s patients; therefore, these findings may help us understand more about this devastating disease.