Interview: Sir Robert Lechler – President, Academy of Medical Sciences (AMS), UK

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Sir Robert Lechler, president of the Academy of Medical Sciences (AMS), discusses the Academy's role in promoting medical research in the UK and how that stands to change in the wake of the country's decision to leave the European Union.

What role does the AMS play in the UK?

There are four national academies in the UK which cover the whole spectrum of research. The most famous of the four academies, The Royal Society is 400 years old, making it the oldest national scientific institution in the world. The British Academy covers social sciences, arts and humanities. The Royal Academy of Engineering covers engineering, while the Academy of Medical Sciences is the youngest of the four academies having been created 20 years ago in 1998. In that very short period of time, it has become the leading voice of academic medicine, biomedical and health research in the UK. That has been a remarkable trajectory and it has earned that place by virtue of the quality of its outputs, particularly its policy documents that have been of a very high quality and very influential. The Academy is comprised of 1200 fellows who are a hugely important resource.

Our mission is to promote biomedical and health research and promote its translation into health benefits. We achieve this aim through the following methods. Firstly, we seek to influence policy in such a way as to sustain the UK's status as an attractive location in which to undertake biomedical

and health research. We produce a number of policy documents each year. For example, our next document to be published discusses the challenges associated with multimorbidity. Our most recently published document describes the ways in which society interprets the risks and benefits associated with medicines. Thus our first focus is policy.

Our second focus is on careers. We aim to do everything we can to attract the brightest and best towards careers in biomedical and health research. We look at pinch points in the career pathway and seek to design interventions that address those pinch points. If these initiatives are successful we invite one of the major funding agencies, such as the Wellcome Trust, to fund them. This is specifically focused within the UK. We also have a hugely successful mentoring scheme. We currently have around 700 mentor-mentee pairs. This creates a link between early career researchers and academy fellows providing early career researchers with career guidance and support.

Our third method in achieving our aims is through fostering the interface between academia, the NHS and industry. We believe that that tripartite partnership is necessary in order to maximize progress in drug and devices development. As such we run The Forum which has around 40 member organizations from industry, academia and the NHS. The Forum chooses topics of interest to those sectors, at the interface between those sectors, in order to drive progress and unblock or remove obstacles stifling progress.

Our fourth focus relates to the promotion of scientific discourse that is specifically designed to bring disciplines together in order to address important scientific topics. We are currently scheduling a conference which will bring neuroscientists, psychologists, social scientists, educational psychologists and imaging scientists together, to discuss the developing brain in order to gain a better understanding of the ways in which we can protect the developing brain from injurious insults.

Finally, we aim to promote international partnering. Broadly speaking there are two categories of partnerships. The first type of partnership is generally with agencies similar to our organization such as the National Academy of Medicine in the US. Generally, these partnerships discuss the ways in which we can cooperate in order to further our common interests. Alternatively, there is our careers support in low and middle-income countries through programs like the Newton Fellowship and the Global Challenges Research Fund. Thus, this is the way in which the AMS functions.

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What would you highlight as the main concerns regarding Brexit and what opportunities do you foresee with the UK leaving the European Union?

I generally organize my list of concerns regarding Brexit into four P's. The first P refers to people; I strongly believe that the most important concern is that the UK will fail to retain and recruit the best talent from around the world either due to changing immigration policy or due to the perception of the UK as inward looking and closed off. The issue of people is by far my main concern. However there has been some reassurance in the form of Prime Minister Theresa May's letter to continental Europeans living in the UK. While this is not a concrete reassurance it is nevertheless an encouraging sign. We need an immigration policy that will allow for the free movement of scientists. However, considering scientists often come with their families it is important that we have a migration policy that also accommodates for the families of scientists as well.

The second P refers to partnerships. The EU has been particularly effective in supporting multilateral partnerships. I don't believe that there is an agency anywhere else in the world which has supported multilateral, multinational partnerships in the way that the EU machinery has been quite skilled at doing. That is incredibly difficult to substitute for. There are of course a number of bilateral partnerships; for example at King's College London, we have created a transcampus with Technische Universität Dresden. However it does not substitute for the multilateral partnerships that the EU framework was particularly good at supporting.

The third P stands for pounds so money. Approximately 13 percent of the UK's life sciences budget is derived from EU funding. While 13 percent is in no way trivial it is also not huge. However, the UK is a net gainer of EU funding. That will very probably change. In particular this is due to a couple of technical issues. First of all, we will lose the rebate that was negotiated by Margaret Thatcher. Secondly, the contribution that must be paid towards EU programs is proportional. Contributions are calculated by comparing the contributors Gross Domestic Product (GDP) in relation to the GDP of the EU as a whole. The UK leaving the EU will reduce the European Union's GDP. Thus the UK will have to contribute more as our GDP will be proportionally more than it had been while the UK had been a member of EU.

The final P refers to permissions or in other words regulation. While the moving of the European Medicines Agency (EMA) is now inevitable, the general philosophy is that we should have as much harmonization as possible with EU regulations, particularly in order to retain our ability to use animals, retain the use of data regulations and stay a part of clinical trials.

In regard to opportunities, we have become intensely aware of the particularly international nature of medical research. It has made us value our international links more highly and allowed us to see ourselves as an element within a highly developed global network. Alternatively, on the regulation front, we may be able to extract an agility dividend through leaving the EU. Particularly in relation to some of the higher risk advances in medicine. We can potentially position ourselves as a desirable location in which to develop innovative biological technologies.

The UK as a country has fantastic universities and an extraordinary record in regards to publications and highly cited papers. Adjusted to the size of the population, we are first in the world in this regard. Considering the size of the UK's budget and the size of its research population, we really excel. Equally the British funding landscape is excellent due to the diversity of funders which include the Wellcome Trust, the Medical Research Council (MRC), the National Institute for Health Research (NIHR) and the various charities which all play significant roles. The UK also has a very significant pharmaceutical and medical technology industry while biotechnology is recovering very well. Furthermore, the NHS is a particular asset. A single healthcare system is a great opportunity if data it produces can be harnessed and linked to research data.

That being said, the NHS is innately conservative. This is in part due to the fact that it is a single national system and as such it is by nature somewhat cumbersome. Nevertheless, it is also due to the adverse financial circumstances that are currently facing the NHS which means that adopting innovation is not a priority. The lack of patient pull in the UK is also a factor, especially in comparison with the US. As such there is not the same incentive to adopt innovations.

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What are your key strategic priorities as the President of the Academy of Medical Sciences?

Our priority is anticipatory policy which we have historically been quite good at. We have been hosting a number of discussion sessions around the country, in which we bring together both fellows and younger creative thinkers to partake in horizon scanning and ask in which direction research is taking us and which issues are likely to arise. I am also particularly excited about our leadership program which is designed to develop individuals equipped to lead life sciences clusters. The program will take emergent leaders from academia, industry and the NHS and train them together. The program will involve immersive experiences in the two sectors in which the particular participant does not have experience. However, I am particularly excited about the interface between disciplines and we recognize that many advances come from those interfaces, whether

that is engineering, medicine or social sciences which are absolutely critical. As such creating a forum is also a significant priority.

A few words to conclude?

The UK has an extraordinary record in regard to life sciences, but it is currently in a vulnerable position and it may face some real headwinds. While the NHS is an incredibly important partner, we need a more financially sustainable future for the NHS. If the NHS will play a role as a research partner, it must have the capacity to engage in research and be motivated to adopt innovation. Equally Brexit is another significant headwind, through which we must navigate. I hope we navigate Brexit effectively and become even more internationally connected than we had been in the past. It is important that we realize that we must nurture those relationships; the alternative in which we become insular, internally focused and complacent is unthinkable.

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