**Editorial**

**Predicting the future: Diabetes and Brexit**

The consequences of our actions are so complicated, so diverse, that predicting the future is a very difficult business indeed. J. K. Rowling, *Harry Potter and the Prisoner of Azkaban*

By the time you read this editorial, the United Kingdom may or may not have left the European Union (EU). Shortly after the 2016 European Union membership referendum, I wrote an editorial to highlight the possible effects that leaving the EU might have on diabetes care across the United Kingdom [1]. I discussed four issues of concern, NHS spending, NHS staffing, the European Medicines Agency and diabetes research. Although the process has been far more complex than ever envisaged, some predictions of the future have proven surprisingly accurate while others remain deeply uncertain.

The Institute of Government have estimated that the preparations for Brexit cost £400 million in 2017/18 and this cost will increase to at least £900 million in 2018/19 giving a total cost as high as £2 billion. Although the real cost of leaving the EU will not be clear for some time, a Brexit windfall for the NHS would appear but a pipe dream. The biggest risk to diabetes care funding is the possibility of a recession following the UK’s departure from the EU because of the effect on tax revenue. Whether this will occur is unknown but both the Office for Budget Responsibility and Institute for Fiscal Studies predict that Brexit will leave public finances in a worse state than remaining in the EU. Although the government has announced increased NHS funding of £20 billion a year by 2023, this money will need to be raised from other sources than a non-existent Brexit dividend.

With NHS staffing at crisis point, this is not the time to be discouraging EU nationals from working here. The good news is that two years after the referendum, according to NHS Digital there are around 4,400 more EU nationals working for the NHS in England than in June 2016. However, this pales into insignificance in comparison with the 100,000 or more NHS vacancies, equivalent to one in 11 posts, in England. Furthermore, these figures coincide with a fall in the number of staff whose nationality is unknown (currently ~6%). So some of the increase could be merely more staff reporting their nationality. The percentage of new NHS staff in England from the rest of the EU fell from 11% to 8% while the number of EU nationals leaving the NHS has increased by 14%. The problem seem particular serious in nursing and midwifery where the number of EU nurse and midwives registering in the UK per annum has fallen from over 9,000 to fewer than 1,000.

As anticipated, the European Medicines Agency relocated to Amsterdam at the end of January 2019 with the loss of 900 jobs in London. This has been a quiet tragedy but nevertheless is a significant blow to the UK and was described by Mike Thompson, the head of the Association of British Pharmaceutical Industries, as akin to watching a British success story being broken up. How this move will affect availability to medicines in the future remains uncertain and will depend on the future relationship the UK has with the EU. A more pressing problem for people with diabetes is the access to insulin and other diabetes drugs in the weeks after Brexit. Insulin in the UK comes from three main companies, Sanofi, Novo Nordisk and Eli Lilly, all of whom manufacture insulin outside the UK. **Wockhardt are the only company to produce insulin in the UK but this is limited to** animal insulin and it would not be possible for them to supply the whole UK market. The Government has stated that the ports, such as Dover and Folkestone, would have greatly reduced capacity for at least six months in the event of a no-deal Brexit because of the additional checks on goods, which could affect the supplies of medicines. Concerns have been raised in the House of Commons and companies have been asked to stockpile insulin to ensure supply. It has been reported that Novo Nordisk has booked air-freight slots and Sanofi is testing other routes to the east and south coasts of the country.

Theresa May has promised to keep biomedical research at the heart of the UK economy but the loss of EU funded research remains a major threat to UK universities. Russell Group universities were awarded 17% of European Research Council grants between 2007 and 2017, more than the total of all German universities. A loss of staff to undertake this research is also likely without specific arrangements to address this. According to HESA, there are currently over 31,000 EU nationals working in academic posts in the UK, approximately 16% of the total academic staff. The impact on diabetes research has not been reported but in the words of the Juvenile Diabetes Research Foundation, “It is difficult at this time for anyone to draw any solid conclusion about the impact of leaving the EU on the UK’s research landscape.”

As J.K. Rowling wrote, predicting the future remains difficult; at the time of writing, there are 50 days to Brexit but it is still unclear whether we will leave the EU and if we do whether there will be a deal or not. One might well speculate how Dante would have responded to Donald Tusk’s remark about a “special place in hell for Brexiteers without a plan”.

Prediction is a theme elsewhere in this month’s issue. In their review article, Sivaprasad and Pearce discuss the need for additional assessment of feature of non-proliferative diabetic retinopathy lesions to help identify those more likely to experience rapid progression of retinopathy [2]. Ruan et al describe the mathematical tools and statistical models that have been used to predict inpatient hypoglycaemia and identify factors that may result in hypoglycaemic events [3] while Min et al found no evidence that metformin omission predicted the risk of hypoglycaemia when sulfonylureas are added [4].

Medicine frequently involves advising people on what might happen and the uncertainties involved in this are well-known. As the famous physicist, Niels Bohr, once said based on an old Danish proverb, “It’s Difficult to Make Predictions, Especially About the Future”.

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References

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