

Design for Life

Life Sciences Minister **George Freeman** talks to Liz Bates about the technological innovations that are transforming patients' experience of the NHS

You cannot help but be inspired by George Freeman. As he describes the potential bioscience has to transform healthcare in the UK, he seems more like an excited scientist than a Minister of State.

But Life Sciences Minister he is; appointed by the Prime Minister in 2014 and the first to take on the newly created role. And while his remit is vast, covering the technological advancement of food, medicine and energy, it is the possibilities for the NHS on which he is most engaging.

The potential benefits of the combination of genetic sequencing and comprehensive data sets are vast, and although this sounds like science fiction, we are already, he says, quite far down the path.

Where it leads us to is precision medicine – treatment tailored to the individual. Fizzing with enthusiasm, Freeman explains how this radical change in approach will affect the development and effectiveness of pharmaceuticals. “The big idea was that in the new landscape of 21st century healthcare and drug discovery, the old model of the way drugs were developed is totally changing,” he explains.

“Drug discovery is all coming back

to start with the patients, start with the data, start with the tissues, start with understanding how real people with real diseases respond to different drugs.

“The more we know about disease, the more we know that what we used to think of as one disease affects different patients in different ways.

“This is partly what has led to the pharmaceutical industry experiencing a falling success rate. So many of the drugs that they develop are in line with the old model, a ‘one size fits all’ blockbuster, ‘we will develop one drug for everyone’ – increasingly, it doesn’t work.

“What we discover in the clinical trials process is that some patients respond really well while others respond really badly. The answer is to begin to develop drugs for much narrower patient segments.

“Precision medicine is the big new agenda.”

Driving this agenda is the use of genomics to understand how genetics affect a person’s predisposition to disease, and informatics; the employment of huge datasets to map how different patients respond to different drugs.

This alongside other technological >





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innovations will supposedly transform patients’ experience of the NHS and take pressure off the creaking service.

According to Freeman, self-monitoring devices and better information sharing are both vital to achieving the modernisation he wants to see.

He describes what the impact will be for cancer patients: “You will walk into a cancer clinic – you will get walk-in care, you will have a genetic test and receive personalised chemotherapy, personalised for your tumour and/ or for your genome.

“There will be easy-swipe, diagnostic tests, personalised treatments, your own drugs made up for your own genome. You’re also going to be liberated from being hospitalised, your data will be remotely sent back to your GP, your electronic health record will be digital and seamless.”

So enthused is he by this vision that the Life Sciences Minister is convinced the founding father of free health care in the UK would approve. “I think if Nye Bevan was

here today – the great socialist founder of the NHS – he would be even more messianic than me about data and genetics because it’s the modern expression of those values of collective healthcare.”

It is a bold claim, but faced with Freeman’s intense commitment to his brief it is hard to argue that politicians across the political spectrum would not be impressed.

An area in which he has not always been so resolute, however, is on EU membership.

In 2014 Freeman produced a document entitled EU impact on Life Sciences: Avoiding the Global Slow Lane, getting the right deal for the UK, in which he criticised the “growing hostility of the EU to ‘biotech’, reflected in an increasing tide of ‘antibiotech’ legislation,” saying it was “having a damaging effect on the EU Bioscience Economy.”

This, he concluded “risks condemning the EU – and by extension the UK – to the global slow lane in biotechnology”.

With the referendum on EU membership approaching, commentators could have been forgiven, based on this and other previous publically declared scepticism, for being uncertain over his position.

But he is resolutely ‘In’. “The EU single market is a phenomenal opportunity for this agenda of 21st century medicine, and the appliance of bioscience and science is a collaborative activity.

“In the same way that science and the European universities drove the enlightenment, the renaissance and the phenomenal explosion of culture that liberated us from the Dark Ages, so the university networks and clinics have an equally exciting opportunity in bioscience.”

However, the Minister does concede that reform is needed in order to facilitate innovation.

“It requires Europe, just as we are doing here, to update and modernise the regulatory landscape for these precisions medicines and these technologies,” he explains, “and what I was highlighting in my report was the danger of the European regulatory framework not responding. On stem cells, on genomics, on data we need to make sure that the European regulatory environment is reformed to reflect these extraordinary breakthroughs.”

In terms of the progress of that reform, he continues: “We’re in the middle of it. The agenda that I set out in the report, I have picked up as a Minister. You will see I had three meetings in Brussels. We set out a very substantial package of measures that we wanted to pursue and, indeed, are pursuing.

“We have won a number of victories. It is on-going work, it is a complex subject and it requires a coalition of other countries. But this is an area where we have a very high level of influence.”