PUTTING DATA AT THE HEART OF OUR HEALTHCARE INDUSTRY

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David Cameron's keynote speech at the FT Global Pharmaceutical and Biotechnology Conference on 5 December launched a range of initiatives to support the Life Sciences sector, including the *NHS Chief Executive Review of Innovation* and the *Strategy for UK Life Sciences*. Two initiatives of note were the commitment to continue to develop capabilities in electronic health (eHealth) and informatics in the healthcare sector, and the commitment to allow earlier access to innovative medicines through changes in the current regulations. Both are initiatives which have data at their heart.

There are different types of data which fulfil different needs: data from randomised controlled trials (RCTs) is established as the gold standard for evaluation of safety and efficacy of new interventions, while Real World (RW) data refers to data collected to assess healthcare outside the tight constraints of conventional RCTs. These data are used to evaluate what is happening in normal clinical practice: for instance, the impact on a health economy of the introduction of a new oral chemotherapy agent in terms of reduction of NHS resource use, improvement in patient satisfaction, and time to progression. These data are collected about the wide variety of 'real' patients in 'real' situations, rather than an artificial clinical trial situation where patients are highly selected and which often involve more intensive monitoring and interventions than normal.

The initiatives announced in December 2011 show the value recognised by the government in RW data and the scope that the collection, analysis and use of the data have to drive changes in our healthcare services. The use of RW data from anonymised electronic healthcare records will enable both the NHS to streamline services, and the pharmaceutical industry to streamline development of new products. The proposed earlier access schemes for some new medicines will help NHS patients gain faster access to innovative medicines and, providing current research governance is adapted in parallel, should facilitate the collection of RW data to help reduce any uncertainty regarding the true value of the medicines.

THE IMPORTANCE OF RW DATA

Many people involved in or associated with the pharmaceutical industry will be familiar with the huge investment required to develop a new pharmaceutical compound and the benefits this brings to countries in which the pharmaceutical companies choose to develop their medicines. From first-in-man studies to test whether a drug is safe to the largest Phase III RCT, the development of novel and innovative medicines is costly and time-consuming and involves large numbers of patients, often in many countries around the world.

However, the story does not stop here. Once a medicine is proven to be safe and efficacious, and a licence to market the medicine is granted, the pharmaceutical industry is also under pressure so show that a product is cost effective in real life and to demonstrate the impact on 'real' patient populations – data that are needed to ensure medicines are accepted by national policymakers and are adopted into practice in the health system.

In the past, studies collecting Real World data have been criticised for lacking the robust scientific methodology of RCTs. However, with the shift in NHS priorities to quality and patient outcomes, it is clear that evaluation of the value of medicines in normal clinical practice is what is required. There is a realisation that it is just not pragmatic or possible to collect all the data which is needed within the constraints of an RCT, and there has been a large shift in mind-set towards RW data as an accepted standard for collection of evidence.

WHY RW DATA ARE IMPORTANT TO PATIENTS AND THE NHS

As the NHS goes through its most radical changes yet – with the empowerment of healthcare professionals and providers, greater choice and control for patients, and the shifting focus away from targets towards outcomes and quality – its requirements for RW data to inform change will become more demanding. NHS decisions will be based on evidence of value in the commissioning of care, payment for services and, importantly, payment for future new medicines. Even more challenging, these changes are happening against the backdrop of a financial crisis and recent recession, with tight financial management required over the coming years and the likelihood of no real increases in health funding.

WHY RW DATA IS IMPORTANT TO THE UK RESEARCH COMMUNITY

The past decade has seen the UK's share of global commercial clinical trial activity decline significantly. Whilst still attracting between 8 and 10 per cent of global commercial trials, the UK only completes between 2 and 3 per cent of global patient activity, a reduction from 6 per cent in 2000[1]. The industry has identified some of the reasons behind this, including slow start-up times, low patient recruitment to time and target, and high and

variable costs. While activities are under way to seek to improve UK performance and make it more attractive for clinical trial activity, an additional strategy to help counteract this shift is to look at other types of research that can be carried out in the UK in a timely and cost-efficient way. A growth in research using RW data is one way to ensure continued growth of the UK in the research arena.

WHY RW DATA ARE IMPORTANT TO THE PHARMACEUTICAL INDUSTRY

2014 will see the introduction of Value Based Pricing (VBP)[2], a new system for reimbursement of innovative medicines placed on the market. Whilst the details are not yet known, it is likely that rather than applying a standard cost-effectiveness threshold to all medicines as the National Institute for Health and Clinical Excellence (NICE) currently does, weightings will be applied to the benefits provided by new medicines, reflecting a range of price thresholds. These thresholds would be explicitly adjusted to include a broader range of relevant factors such as burden of illness, contribution to NHS service improvement and innovation, and societal costs and benefits, to calculate the full value of a new medicine.

To provide relevant evidence for these evaluations, it will be essential for the pharmaceutical industry to demonstrate the additional benefits of medicines above and beyond the quality, efficacy and safety demonstrated in randomised clinical trials. This will reduce the uncertainty surrounding the value of a medicine at the time of launch, accelerating uptake for the benefit of patients and the industry alike.

Data on unmet medical need, current burden of disease, and wider societal benefits of a medicine, which are reported to be important factors in influencing the cost threshold for pricing and reimbursement, will be best demonstrated through the collection of RW data and could well be supported by the research capabilities offered through the planned expansion of access to healthcare data.

THE OPPORTUNITIES AND IMPLICATIONS

Whilst we can see that RW data are important to the NHS, the UK research community and the pharmaceutical industry, there are two overarching opportunities for the UK to exploit over the coming years.

1. The opportunity to ensure that any UK-specific data are collected in a timely manner for new medicines to facilitate faster uptake by the NHS and access for patients to new innovative medicines.

Non-interventional RW data cannot replace the quality, safety and efficacy data generated by RCTs but can help support those data by allowing actual versus expected efficacy and safety to be evaluated in the context of a normal clinical setting.

It has been recognised that the regulatory frameworks in place for research in the UK currently limit the opportunities for this type of work prior to a new medicine being licensed, and this is now being addressed. However, fears that have been raised concerning the appropriate use of data, and protection of anonymised patient level health-related data need to be addressed. It will be essential for the pharmaceutical industry, NHS and academia to work closely together in order to maximise the opportunity that the proposed changes afford.

2. The opportunity for the UK to position itself as a centre of excellence for RW data collection, to support its own and other countries' requirements for RW data that can be generalised across a number of healthcare systems.

There are a number of key factors that make the UK a favourable place for the collection of Real World data:

• UK influence on global decision-making in medicine development

It is recognised that the majority of the pharmaceutical companies work in a global market and the UK is only one of the important healthcare sectors. While the UK represents only a small share of the global revenue for a medicine, it nonetheless has a significant influence on access to medicines in other countries. From a Health Technology Assessment (HTA) perspective, recommendations on the most cost-effective use of medicines developed by UK bodies such as NICE are formally or informally used to make coverage decisions in other countries, including emerging markets. In addition, the influence of NICE has been increasing since the establishment of NICE Scientific Advice and NICE International, which are NICE divisions providing assistance to, respectively, companies and payers/governments across the world.

• Attractive NHS environment

The UK has a unique 'cradle to grave' healthcare system, with the General Practitioner being a gatekeeper to most of the health and social care requirements of an individual throughout his or her life. The UK has a wealth of electronic databases developed over the past 20 years containing patient information with provisions in place to maintain patient confidentiality. The Strategy for UK Life Sciences set out the commitment to have the Health and Social Care Information Centre in place by September 2012. This will provide a secure data linkage service between various data sources with data extracts delivered on a routine basis using un-identifiable patient level linked data from primary and secondary care. The data will be available to all users of health and care information in order to drive improvements in care, enterprise and innovation. In addition, the Clinical Practice Research Datalink (CPRD) will offer data services to the life sciences industry based on the datasets held by the Health and Social Care Information Centre.

• Progress with streamlining the regulatory and governance frameworks for real world research

The Health Research Authority (HRA), launched in December 2011 as a Special Health Authority (SpHA), completed one of the key commitments made by the Government in the Plan for Growth, published in March 2011, towards rationalising and improving health research regulation.

It is proposed that the HRA will co-operate with others to combine and streamline the current approval system and promote consistent, proportionate standards for compliance and inspection. In doing so, it will reduce the regulatory burden on research-active businesses, universities and the NHS, and improve the efficiency and robustness of decisions about research projects.

Current frameworks for

approval, however, cover all types of healthcare research (including RCT and RW data studies) and it is essential that the HRA considers RW data studies specifically, as progress is made towards addressing this important recommendation. This offers an opportunity for the UK to be a more attractive environment for the conduct of RW data studies.

• **Skills and education**

The strong links that the UK pharmaceutical industry has with the academic community are crucial in ensuring the appropriate skills are identified and developed to support this growing area of RW research. The pharmaceutical industry has a responsibility to ensure that the personnel involved in RW data projects locally have the appropriate knowledge level or, alternatively, to secure the necessary support for study design and collection, analysis and subsequent use of these data.

SUMMARY

It is well recognised that data about patients' use of medicines in normal clinical practice, or in settings which reflect the reality of health care delivery – Real World data – are likely to become increasingly important in decisions that affect patients' access to medicines.

The UK is already well placed to lead the world as a centre of excellence for the collection and use of this type of data. The plans announced in December 2011 have been welcomed and help move even closer to this goal. However, it is essential that ongoing consideration is given to the remaining challenges raised here if we are to optimise the benefits to the UK that could be afforded by this opportunity.

Footnotes

1 Kinapse. Commercial Clinical Research in the UK: A report for the Ministerial Industry Strategy Group (MISG) Clinical Research Working Group. November 2008

2 Department of Health. A new value-based approach to the pricing of branded medicines: Government response to consultation. July 2011

Available at: http://www.dh.gov.uk/en/Consultations/Responsestoconsultations/DH_128226 (accessed on 14/12/11)

'COST-PER-QALY IN THE US AND BRITAIN: DAMNED IF YOU DO AND DAMNED IF YOU DON'T'

Dr Adrian Towse

Cost-per-Quality Adjusted Life Years (QALY) is the means by which the value of a medical intervention can be quantified, and is used by the National Institute for Health and Clinical Excellence (NICE) to determine the cost-effectiveness of medicines. This was the subject of the Office of Health Economics' Annual Lecture, given on 15 November in London by Dr Milton Weinstein, Henry J Kaiser Professor of Health Policy and Management at the Harvard School of Public Health.

The lecture was something of a social commentary on the differences in attitudes in the UK and the USA regarding healthcare costs and, in particular, cost-effectiveness analysis costs per QALY. One quote by Dr Weinstein summed this up: 'If you cannot tell from the title, you are the folks who do and we are the folks who don't … In my country we do not touch cost-effectiveness analysis with a 10-kilometre pole: in this country you seem to have a love affair with it'.

Dr Weinstein gives a number of arguments deployed in the USA for not using cost-effectiveness analysis. The most prominent of these is that there is no relation between healthcare expenditures and health outcomes across hospitals in the USA. This, according to Dr Weinstein, is actually true – the association between overall expenditures and outcomes tends to be a 'very fuzzy relationship'. Together with Jonathan Skinner of Dartmouth Medical School, Dr Weinstein recently wrote a paper published in the *New England Journal of Medicine* about what this weak relationship between expenditures and outcomes implies about the need for cost-effectiveness analysis.

What he showed in this paper is that healthcare expenditures are not used most efficiently. There are many situations in which many of the most cost-effective health services and interventions are under-utilised. For example, fewer than half of Americans over the age of 50 have ever had a colorectal screening exam; nor do people get their influenza vaccinations or pneumococcal vaccinations as recommended. For a state to cut its expenditures and improve health outcomes simultaneously, Dr Weinstein concludes it needs to increase the utilisation of highly cost-effective interventions like these and simultaneously cut back on less cost-effective