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Big data and the NHS: can analytics tame the Leviathan?

If used to its potential, data can unlock a range of opportunities. It is time to consider how the NHS can take advantage

David Downing
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'The NHS produces big data but the underuse and misuse of the information has started to cost lives.' Photograph: Images.com/CORBIS

This week, Big Data Week brings together experts in the fields of science, technology, community development, business and government from across the world to discuss the impact of big data. If used to its full potential, the analysis of large data sets can open previously unthought-of opportunities, and it is time to consider the ways in which the NHS can take advantage.

The NHS is a relentless producer of big data but the underuse and misuse of this information has started to cost lives and is not sustainable.

Back in February, the Francis Report exposed the systemic deficiencies of the Mid Staffordshire trust and highlighted the need for more accurate, useful and relevant information, compliance measured by evidence-based methods (as opposed to gut instinct and out-of-date information) and improvements to core information systems.

While access to data is important, having the tools to analyse all the data, rather than a sample, is vital to identify trends and build a complete picture of what's happening.

One of the reasons years of mismanagement at Mid Staffordshire went unnoticed is because it was possible to misclassify and misrepresent patient statistics.

Tim Kelsey, the NHS national director for patients and information, told delegates at the recent HC2013 Conference that care.data – a programme designed to link patient data from different care sectors for the first time – was essential, because the NHS had almost no information on what it did, never mind about the outcomes of its work.

It is not just about the ability to analyse all the relevant information, but having access to it at the right time so early intervention can prevent adverse developments affecting patients' health, and therefore avoiding retrospective treatment. This could deliver huge efficiency savings by reducing the cost of treatment and freeing time for hospital staff. According to the CEBR report Data Equity – Unlocking the Value of Big Data, the use of big data analytics across the healthcare sector could deliver additional revenues of £14bn from 2012 to 2017.

If the government is to achieve its aim of digitising all health data and making it available to staff at the touch of a button by April 2018, it is important that processes are standardised and appropriate analytical tools are used to enable effective information sharing across the healthcare network.

The Francis report highlighted the fact that quality is about more than improving outcomes and hitting targets: it is about developing a culture of patient-centred, compassionate and responsive care. Health secretary Jeremy Hunt said he would put compassion back into the NHS by introducing a statutory duty of candour that would punish health providers for concealing mistakes.

That means, however, that staff must be supported to deliver the best care to every patient and be able to make decisions based on accurate information – not just experience or the balance of probabilities. At the same time, trusts must be able to continuously monitor and analyse the performance of every ward and department to ensure patients are receiving the right quality of care. Hunt's planned chief inspector of hospitals and chief inspector of social care will only be able to avoid future mismanagement and make objective and balanced decisions if they have access to up-to-the-minute accurate information.

The NHS must perform a difficult balancing act between providing high-quality care and saving £20bn a year by 2015. Big data analytics offers a way of achieving this and, if approached correctly, it does not necessarily require major new investment. Many foundations have already been laid and now need to be joined together. For example, NHS Blood and Transplant has already been using analytics for some time to improve patient survival rates.

To achieve a sustainable NHS for future generations, co-operation and cross-industry knowledge exchange is essential. This is why events such as the Big Data Week are so important. By sharing best practice, providing support and exchanging ideas, it is possible to improve civil services across the globe and even tame our Leviathan.

David Downing is director of health at SAS UK.

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