



FERTILITY UNDER THE MICROSCOPE

Professor Alison Murdoch, professor of reproductive medicine at Newcastle's International Centre for Life, argues that incremental changes in patient and lab data can mean the difference between a successful or failed IVF treatment.

The combination of lifestyle and life choices – such as starting a family later in life – have steadily increased the cases of fertility treatment across the UK. Approximately four in 10 IVF cycles are funded by the NHS, costing about £60.4m every year. However, that total could rise to £65.2m should recommendations from the National Institute for Health and Clinical Excellence (NICE) for the assessment and treatment of people with fertility problems be implemented.

For many couples desperate to have a child it is difficult to equate the cost of treatment with their probable chance of success, but for the NHS, knowing the cost of treatment in relation to the rate of success is essential to adequately allocating limited resources and ultimately, assist as many couples as possible who require treatment.

Criteria for the provision of IVF treatment varies across the UK. Since April 2013, they are dependent on the local CCG responsible for authorising NHS services. Controversy over the fairness of what have been dubbed 'postcode lotteries' to determine eligibility for NHS-funded fertility treatment has further highlighted the need for the NHS to effectively manage costs and treatment, as audits reveal that 52% of CCGs offer just one cycle of IVF and fewer than one in five CCGs are paying for the full number of three IVF cycles as recommended by NICE.

For many fertility specialists, the single biggest contributor to cost savings and resource allocation is the ability to accurately predict the success of IVF or ICSI treatment. Currently, a live birth is dependent on numerous factors specific to the couple being treated, but these factors are based on aggregates and averages relevant to a wide range of patients. But what if there was a way to harness individual patient data in a specific structure that could make costly treatments like fertility more effective?

It's that exact question that Alison Murdoch, professor of reproductive medicine at Newcastle's International Centre for Life, took to a local clinical software developer as the premise for designing a solution that meets all the necessary requirements.

She said: "Regulation in fertility is far more prescribed than other fields, due largely to the Human Fertilisation and Embryology Authority (HFEA) and while there are resounding benefits to going paperless, it was not our main priority. Our goal was to create an innovative system that could combine HFEA data collection requirements with pertinent patient care information."

"Currently, there are products available for a combination of clinic management and HFEA data but insufficient in the middle about the patient – and that's where we saw an opportunity to create a system for this highly specialised field that harnesses individual patient data to more accurately predict, and improve efficiency of fertility treatment provision."

She explained that a major obstacle to realising a complete data solution is the HFEA requirement to keep hard copies of patient records separate from other records – limiting their use of electronic records because the information can't be merged into one source. "The upside is that there is less chance of losing records but there's also the logistical problem of storing vast amounts of paper records," she said. "Physically managing the volume limits our ability to carry out clinical work in a reactive manner because of the time it takes to locate a file and respond to a patient's query."

Another challenge to designing a specialist solution is working within the budget constraints of the NHS, but Murdoch maintains that the business case for implementing a complete, custom electronic record continues to grow. Cost savings in

relation to admin staff, improved efficiency and putting archived records onto CD are only the initial benefits that the trust is set to realise. In addition to cost savings, there is enormous benefit to the patient and treatment outcomes.

Murdoch said: "The sensitivity of treatment is so narrow that even incremental changes in patient and lab data can mean the difference between a successful IVF treatment or not. By capturing this information, we can interrogate the data in standard reports to garner an individual, reliable indication of success while producing the clinical auditing requirements of regulators."

Murdoch and her team have worked with developers to design a data dictionary as the first phase of development. She envisages that the system will be complete in the coming months and will offer the fertility field a much-needed benchmark for bringing pertinent data together to offer patients a better indication of their individual chances of conceiving. It will allow them to make an educated decision as to whether or not to pursue treatment.

Similarly, the NHS will have actionable data with which to determine new criteria for granting funding while limiting treatment for couples who don't have a reasonable and 'data-determined' chance of conceiving.

Murdoch concluded: "The bigger picture is that this project demonstrates the need for innovation in healthcare to provide specialists with specialist tools to make treatments much more efficient and that can be applied to other fields which are equally specialist for the benefit of the NHS and the patient."

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