# Imperial College research reveals AI's potential to enhance IVF treatment success



A research team at Imperial College Healthcare, in collaboration with Imperial College London, has recently unveiled significant findings from an extensive analysis involving artificial intelligence (AI) and its potential to enhance the effectiveness of in-vitro fertilisation (IVF) treatments. The study, which encompassed data from 19,000 patients who completed IVF procedures, employed "explainable AI" methodologies to elucidate the decision-making processes and predictions related to egg retrieval success.

The investigation specifically focused on the relationship between follicle size and the viability of eggs for collection, determining that the administration of a hormone injection before collecting eggs was associated with improved success rates when follicle sizes ranged between 13-18mm. This crucial insight aims to refine the IVF process and elevate the chances of conception amongst patients undergoing treatment.

As a next step, the research team plans to secure funding to conduct a clinical trial that will validate their findings. The ultimate goal is to develop an AI tool capable of utilising patient data to tailor IVF treatments, thus aiding healthcare professionals in making informed decisions throughout the IVF journey.

Dr Ali Abbara, who is a consultant in reproductive endocrinology and a co-senior author of the study, highlighted the importance of maximising the efficacy of IVF treatments in light of their invasive, costly, and time-consuming nature. "IVF provides help and hope for many patients who are unable to conceive but it’s an invasive, expensive, and time-consuming treatment. It can be heartbreaking when it fails, so it’s important to ensure that this treatment is as effective as possible. AI can offer a new paradigm in how we deliver IVF treatment and could lead to better outcomes for patients," Dr Abbara explained.

Further commenting on the transformative potential of AI in healthcare, Dr Thomas Heinis, another co-senior author from the department of computing at Imperial College London, noted the value of explainable AI in high-stakes medical decision-making. "Explainable AI can be a valuable resource in healthcare. Where the stakes are so high for making the best possible decision, this technique can support doctors’ decision making and lead to better outcomes for patients," he remarked.

In related news, Imperial College Healthcare has, in a bid to encompass the use of AI across its operations, published a comprehensive framework outlining its strategy for future adoption and utilisation of AI technologies. This framework identifies four primary focus areas where AI could play a pivotal role: clinical care delivery, clinical and patient administration, corporate back office functions, and predictive measures for prevention.

Additionally, the South Yorkshire Digital Health Hub has allocated £500,000 in funding for seven innovative initiatives aimed at enhancing disease diagnosis and addressing health disparities within the region. Several of these projects leverage AI to promote better health outcomes, including those focused on diagnosing coronary artery disease through wearable technology data and employing AI to forecast survival rates and treatment responses for lung cancer patients.

Earlier this month, another development in healthcare technology was documented, involving a collaborative effort between Norfolk and Norwich University Hospitals and the University of East Anglia. Together, they have been working on the Continuous Ambulatory Vestibular Assessment (CAVA), a new device designed to identify the most common causes of dizziness. A clinical trial involving 20 hospitals is underway to refine the AI algorithm supporting this device, showcasing the ongoing integration of advanced technologies in healthcare.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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2. <https://medicalxpress.com/news/2025-01-ai-techniques-reveal-ideal-follicle.html> - Supports the research finding that follicle sizes between 13-18mm are optimal for egg retrieval and the plan to develop an AI tool for personalized IVF treatment.
3. <https://www.eurekalert.org/news-releases/1069675> - Highlights Dr. Thomas Heinis's comments on the value of explainable AI in high-stakes medical decision-making and its potential to improve patient outcomes.
4. <https://medicalxpress.com/news/2025-01-ai-techniques-reveal-ideal-follicle.html> - Details the current clinical practice of using ultrasound scans to measure follicle size and the potential improvement with AI-driven methods.
5. <https://www.eurekalert.org/news-releases/1069675> - Mentions the collaboration between Imperial College London, University of Glasgow, University of St Andrews, and Imperial College Healthcare NHS Trust in the research.
6. <https://medicalxpress.com/news/2025-01-ai-techniques-reveal-ideal-follicle.html> - Discusses the plan to apply for funding to take the AI tool into clinical trials to validate the findings.
7. <https://www.eurekalert.org/news-releases/1069675> - Quotes Dr. Ali Abbara on the importance of maximizing the efficacy of IVF treatments due to their invasive, costly, and time-consuming nature.
8. <https://medicalxpress.com/news/2025-01-ai-techniques-reveal-ideal-follicle.html> - Explains the potential of AI to personalize IVF treatment and support clinicians' decision-making throughout the IVF process.
9. <https://www.frontiersin.org/journals/artificial-intelligence/articles/10.3389/frai.2024.1392611/full> - Provides context on other studies using machine learning for IVF outcome prediction, highlighting the broader application of AI in reproductive health.
10. <https://www.eurekalert.org/news-releases/1069675> - Mentions the funding sources, including UK Research and Innovation and the National Institute for Health and Care Research (NIHR) Imperial Biomedical Research Centre (BRC).
11. <https://htn.co.uk/2025/01/09/imperial-college-healthcare-ai-analysis-provides-insights-into-ivf-treatment-success/> - Please view link - unable to able to access data