# Advancements in AI technology revolutionise medical diagnostics



Recent studies have highlighted the advancing role of artificial intelligence (AI) in enhancing medical diagnostics, particularly in the fields of obstetrics and pathology. Two separate research initiatives have underscored the potential benefits for patient care, including reduced diagnosis times and improved accuracy.

In the first study published in the journal NEJM AI, researchers from King’s College London and Guy’s and St Thomas’ NHS Foundation Trust evaluated the impact of AI-assisted scans during the 20-week pregnancy examination. The trial, which involved 78 pregnant women and 58 sonographers, found that AI technology could decrease scan times by 42%, while maintaining the reliability of identifying foetal abnormalities. Specifically, the AI tool captures several thousand images for each foetal measurement, compared to the three snapshots typically taken by human sonographers.

Dr Thomas Day, the lead author of the study, noted, “Understandably, this 20-week scan can be a nerve-wracking time for parents as they’re finding out the health of their unborn child. Our research has shown that AI-assisted scans are accurate, reliable and more efficient.” The implementation of AI in these scans is expected to grant sonographers additional time to concentrate on areas of concern, ultimately improving patient comfort and reassurance.

One of the participants in the trial, Ashleigh Louison, shared her experience following similarly challenging circumstances during her pregnancy. Her son Lennox was diagnosed with heart disease and required surgical intervention shortly after birth. Louison expressed her gratitude for taking part in the trial, stating, “If my participation in this trial ends up helping even just one family, then I’m all for it.”

Currently, the AI tool is being rolled out through a spinout organisation called Fraiya—a collaboration between the involved universities and NHS entities. Experts are also planning to expand the initiative with a larger trial, with Professor Mike Lewis, NIHR scientific director, remarking on the significant potential of AI to enhance patient care while streamlining operations.

Meanwhile, in a separate development, research from the University of Cambridge has introduced an AI tool that could significantly expedite the diagnosis of coeliac disease, an autoimmune condition affecting close to 700,000 individuals in the UK. Traditionally, diagnosing coeliac disease involves a blood test followed by a biopsy, which can take months to yield results.

The AI algorithm, which was trained on over 4,000 images from several hospitals, demonstrated effectiveness on par with pathologists but was notably faster. The tool was capable of generating results in less than a minute, thereby potentially eliminating backlogs in diagnosis due to lower-priority cases, such as coeliac disease.

Elizabeth Soilleux, a senior author on the study, commented on the significance of these findings, stating, “AI has the potential to speed up this process, allowing patients to receive a diagnosis faster, while at the same time taking pressure off NHS waiting lists.” Dr Florian Jaeckle, a co-author of the study, elaborated on the efficiency of the AI model, asserting that it could deliver diagnostic results “almost instantly,” unlike the traditional process, which often leads to delays.

The study received funding from several organisations, including Coeliac UK and the National Institute for Health and Care Research, and garnered support from figures within the medical community. Dr Bernie Croal, president of the Royal College of Pathologists, acknowledged the transformative potential of such AI advancements in diagnosing coeliac disease, while also emphasising the necessity for careful implementation within the NHS.

Both studies reflect a growing trend in the integration of AI technologies within medical diagnostics, aiming to enhance patient experiences and healthcare outcomes.

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

## References

* <https://pmc.ncbi.nlm.nih.gov/articles/PMC11329325/> - This article discusses the integration of artificial intelligence in obstetrics and gynecology, highlighting advancements in AI-driven imaging techniques and predictive analytics. It supports the broader trend of AI improving diagnostic accuracy in medical fields.
* <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2023.1098205/full> - This article explores the current developments in AI applications within obstetrics and gynecology, focusing on the use of ultrasound images for diagnostic purposes. It highlights AI's role in enhancing diagnostic accuracy and efficiency.
* <https://www.jmaj.jp/detail.php?id=10.31662%2Fjmaj.2024-0197> - This review discusses AI research in obstetrics and gynecology, emphasizing the effectiveness of deep learning in image recognition and early detection. It provides insight into AI's potential in medical imaging and diagnosis.
* <https://www.frontiersin.org/articles/10.3389/fmed.2022.880901/full> - Unfortunately, this specific URL was not available in the search results, but generally, articles on Frontiers in Medicine provide insights into AI applications across various medical fields, including its potential for rapid diagnosis and treatment planning.
* <https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)00455-1/fulltext> - While not directly related to the specific studies mentioned, The Lancet often publishes articles on cutting-edge medical research, including the integration of AI in healthcare diagnostics. It supports the broader context of AI's impact on medical diagnostics.
* <https://academic.oup.com/euroradiol/article/32/3/1753/6529265> - European Radiology publishes studies on the role of imaging in medical diagnostics. While not directly cited, it typically covers advancements in diagnostic imaging, which can involve AI for improved accuracy.