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Pathology and artificial intelligence

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November 4th-10th was National Pathology Week (NPW), the Royal College of Pathologists' annual week-long celebration of activities and events promoting the disciplines and professions in pathology. The theme was: exploring innovations big and small. We take a look at why artificial technology (AI) is underpinning many of these innovations.

How AI is meeting the needs of pathologists

Pathology has been an early adopter of AI as it is able to assist in many of the tasks in the clinical workflow. There is a growing trend, for example, towards artificial intelligence being used to improve clinical outcomes by assisting in accurately diagnosing diseases and predicting patient prognoses through image analysis.

Pathology and speech recognition

Whilst the focus of AI in healthcare is on providing faster, more accurate innovations for diagnosing disease, in practice, the use of AI technology is already having an impact on operational efficiencies. An

increasing number of pathology departments have transformed the way they work by embedding speech recognition technology into their workflow. Speech recognition allows pathologists to maximise their time for clinical analysis and interpretation and minimises repetitive, time-consuming administration.

By capturing their notes without being interrupted by keystrokes, clicks and passwords, saving to queues or authorisations, integrated speech-driven AI work-flows allow pathologists to focus on the sample or specimen they are studying rather than paperwork, improving the quality of their reporting and minimising report turnaround time.

Whilst AI-driven scans and digital pathology assistants are innovations in progress, the way AI can help a clinician's workflow on a daily basis should not be overlooked. Pathologists' productivity in diagnosing illnesses quickly and accurately can be equally assisted by operational AI technology as well as diagnostic AI with both types having the end result of enabling disease-specific treatment to be started sooner and potentially more lives saved.

A good example is the Cellular Pathology Department at Derriford Hospital in Plymouth which was struggling to meet the national RCPath Turnaround Time (TATs) standards for cancer reporting. Changes to the workflow which included the adoption of speech recognition were trialled and then implemented. These changes transformed the working practices of the department, improved patient care, and rapidly took the unit from failing to award-winning status in six months

Increasing investment in AI for healthcare innovation

The trend towards AI innovation and major investments in digital pathology to support health services has been driven by a worldwide shortage of pathology specialists juxtaposed with a growing demand for their services to be faster and provide more accurate diagnoses.

However, with investment in AI likely to grow – innovations like AI-powered speech recognition could see a further boost. In August 2019, an investment of £250m was announced by health secretary Mathew Hancock for the creation of a National AI Lab for the NHS.

In September 2019 the Government subsequently also allocated £133m to develop healthcare technologies that use artificial intelligence (AI) and gene-based therapies to specifically help people with cancer, dementia and Parkinson's disease.

Together with NHSI Improvement's move to create 29 regional pathology networks which are already starting to appear, it looks as though pathology is in a good position to continue to lead the way when it comes to adopting innovative technology and National Pathology Week is a good opportunity to celebrate this.

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About Dr. Simon Wallace

Dr. Simon Wallace is the Chief Clinical Information Officer (CCIO) of Nuance's Healthcare division in the UK and Ireland. Simon has worked as a GP, hospital and public health doctor in Brighton and London. His interest in health informatics began in the 90s when he spent a year at the King's Fund investigating the impact of the internet on shared decision making between patients and their healthcare professional. For the past 15 years, he has worked for a range of organisations including Bupa, Dr Foster, Cerner Corporation and GSK across a range of technologies which include electronic patient records, telemedicine, mobile health and lifestyle devices. Simon has a keen interest in the voluntary sector, recently completing a 7 year term as a Trustee for Fitzrovia Youth in Action, a children and young people's charity based in London.

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