

New advances in cancer diagnosis

December 8 2015

A University of Warwick computer scientist is working with technology that could revolutionise how some cancers are diagnosed.

A high-tech [computer](#) system is able to read samples of human tissue and aid pathologists in the identification of minute changes in cells that can indicate cancer is present. More than 10,000 slides were examined in the first phase of the study which shows that pathologists are as good at accurately diagnosing cancer on a computer as they are with a microscope.

Now Professor Nasir Rajpoot is working with University Hospitals Coventry and Warwickshire NHS Trust (UHCW) to develop the next generation of image analytics to use with this technology.

The ground breaking technology has the power to help pathologists grade some types of tumours, including lung, prostate and bladder tumours with precision. In prostate cancer, for example, this could make the difference between someone being offered surgery rather than drug based treatments.

The computer system known as The Omnyx Precision Solution, can help pathologists to see the small differences in cells in the same way that they have currently been using a microscope, allowing them to make sound decisions on many aspects of cancer diagnosis.

UHCW is the first in the UK to introduce this kind of innovation to its routine practice, meaning it is already benefitting patients.

The Omnyx system digitises slides which are traditionally placed on a microscope so that [pathologists](#) can look at them on a computer. Once on the computer, the UHCW scientists have written programmes which will separate normal from abnormal samples.

Consultant pathologist David Snead said: "I am delighted that University Hospital, Coventry has led this ground breaking study. This provides even greater evidence that digital pathology really works, and works well. The introduction of digital pathology has fantastic potential benefits for patients. We can expect to be able to read samples more quickly than before, and the big advantage is that we can use the computer to easily manipulate an image or its data. For some patients, this additional information may change how their disease is managed."

Mamar Gelaye, CEO of Omnyx noted: "Dr Snead and his team have made a significant contribution to showing the value of digital pathology for both clinicians and patients. We are only at the beginning of harnessing the benefits of digitising pathology services, and we look forward to working with institutions like University Hospitals Coventry and Warwickshire NHS Trust to achieve even greater progress in delivering more accurate and efficient cancer diagnoses."

Dr Rajpoot said: "This is a very exciting development in the field of digital pathology. What it means is that we can now move forward with the application of digital pathology image analysis algorithms in a clinical setting. For instance, computer algorithms can automate the process of detecting normal samples so that some routine cases will not need to be looked at by a pathologist at all.

"Together with the team at UHCW, we are looking forward to developing technologies for computer-assisted diagnosis and image analytics for discovering biologically meaningful and clinically relevant signatures of [cancer](#)."

More information: David RJ Snead et al. Validation of digital pathology imaging for primary histopathological diagnosis, *Histopathology* (2015). [DOI: 10.1111/his.12879](https://doi.org/10.1111/his.12879)

Provided by University of Warwick

Citation: New advances in cancer diagnosis (2015, December 8) retrieved 26 April 2024 from <https://medicalxpress.com/news/2015-12-advances-cancer-diagnosis.html>

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